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The Business *of* Living

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"Seven Men and Why"
"The End of the Day"
"You and Others"
"Inside Out"
Etc.

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Foreword

Of all business, the BUSINESS OF LIVING is the most important and perhaps the least understood.

Few of us think of living as a business. We usually accept it as a natural, biological consequence and give it little thought, save when for some cause or other, it fails to carry on comfortably. It should be our special business to make living a business and learn to conduct it as such.

Fortunately for us, Nature takes a hand in the game, and, out of the usual hodge-podge of indifferent living habits, manages to salvage a degree of health and efficiency. Although the average individual may seldom be utterly ill, the efficiency peak is not maintained for any length of time. The majority of us are seldom more than half well most of the time.

We know comparatively little about ourselves and less about the food upon which we live. We, perhaps, do not realize that human energy is simply food transformed and vitalized. If we are to take over the BUSINESS OF LIVING, it is fundamental that we have some con-

ception of our physical, chemical, and mental selves, and, as well, be in possession of some simple basic facts about food and its relation to efficient living.

It is the purpose of this volume to briefly review these fundamentals. The book does not anticipate an advanced study of the problem. It is designed to provide a foundation and will be found invaluable as a guide to food selection and preparation. It is hoped that the student will proceed to enlarge upon the essential factors of profitable and comfortable living as outlined in this volume.

N. E. Ellis-Shenton

Part One

PHYSICAL INVENTORY

PART ONE

Physical Inventory

Chapter 1

The Digestive System

The digestive system is directly concerned with the capture and transformation of food. For our purpose, it is composed of the alimentary canal, the liver, the spleen, the pancreas, and all the accessory glands, ducts, and such associated therewith.

The canal, proper, is approximately thirty feet in length. It begins at the lips and ends at the anus. It includes the lips, tongue, teeth, mouth, salivary glands, pharynx, esophagus, stomach, and large and small intestines. It is described as a hollow tube which varies in size and contour.

The Mouth and Teeth:

Nature gave us a set of teeth for a definite purpose, and that purpose is to thoroughly masticate and break up the food which we expect

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to eventually become part of our bodies. Digestion is partly a mechanical process and partly a chemical process. Bolting food is a very grave error. It is anything but good practice. IF WE USE OUR TEETH MORE WE WILL USE THEM LONGER.

In this respect it is well to remember that digestion begins in the mouth. The alkaline secretions of the mouth glands are very essential to the digestion of certain foods. Especially is this true of starches. If foods enter the stomach unprepared by these juices, the process of final transformation is hampered to a very great extent.

A HEALTHY CLEAN MOUTH IS THE FIRST ESSENTIAL TO PERSONAL HYGIENE. In addition to the usual scrubbing of the teeth with your favorite tooth paste, you will find it advantageous to scrub the teeth thoroughly two or three times a week with fresh lemon juice. The gums will remain firm, and the teeth free from acid film, if this procedure is followed.

The Esophagus:

The section of the canal between the throat

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and the stomach is called the esophagus. The tube is about one-half inch across and will extend to twice that size when food is being transferred into the stomach. IF THE FOOD HAS BEEN PROPERLY MASTICATED A CUP OF COFFEE WILL NOT BE REQUIRED TO WASH IT THROUGH THIS PORTION OF THE TRACT.

The Stomach:

The stomach is simply an irregular-shaped enlargement of the esophagus. It varies greatly in size and shape. If the walls are healthy, the organ will assume a more or less perfect outline. When they lose their tone, the stomach will sag far below its normal position in the abdomen.

The cavity of the body is divided into halves by a large dome-shaped muscle called the diaphragm. The upper half is called the thorax and the lower half the abdomen. Normally the stomach should occupy the upper left corner of the abdomen in direct contact with the diaphragm from below. When the stomach is distended with gas, or overloaded with food, the upward pressure will sometimes register on the

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diaphragm as hiccoughs. This form of impingement is both unpleasant and dangerous. If the condition maintains long enough a spasmodic contraction of the muscle will become chronic and a partial paralysis follow. IT IS ALTOGETHER A GOOD IDEA TO SAVE SOME FOOD FOR THE NEXT MEAL. Avoid overloading the stomach.

Function of the Stomach:

A stomach is said to be the main organ of digestion, but it does not complete the process by any means. A great part of the work is done by the small intestines. While in the stomach the food is saturated with the gastric juices in preparation for intestinal digestion; some foods yielding up their values while being retained there.

At the lower end of the organ we find the pyloric valve. When the food is ready for the small intestine this valve opens and the material enters the first section of the tube below the stomach. When foods fail to leave the stomach on time, fermentation follows, and gas is created. Much of this trouble can be prevented if the food is intelligently selected, properly mixed

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with the alkaline solutions of the mouth before entering the stomach, and thoroughly masticated.

To avoid possibility of trouble, provide simple food in reasonable variety and not too great quantity. Foods rich in natural potassium and sodium should form the main diet if a condition of this kind is chronic. Foods rich in sugar, starch, and protein, as well as those rich in sulphur, should be largely avoided.

The Duodenum:

At the lower end of the stomach the tube narrows again to form the small intestine, the first nine or ten inches of this portion being called the duodenum. This is the most common seat of ulcers. The common bile duct, directly from the gall bladder and liver, enters the tube just below the junction of the duodenum and the lower end of the stomach. Bile is essential to the peristaltic activity of the small intestine, but it is poison when it backs up into the stomach. Sick headaches and billiousness are the result of misplaced bile.

In other words, the bile is in the stomach instead of where it belongs, in the small intestine.

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If the stomach is held in its place by the sturdy walls, and the duodenum is free from impacted foods, the bile will flow into the small intestine and not into the stomach. From recent experiments, it would seem that the duodenum is the center of iron absorption. (See notes on iron.)

The Small Intestine:

This portion of the alimentary canal is approximately twenty feet in length. In structure the walls are not wholly unlike those of the stomach and large intestine. Millions of tiny muscle fibers contract and relax to produce peristalsis, or the continued motion which characterizes this part of the digestive tract. On the inner lining of the tube, small hair-like projections are found. When food is ready for assimilation it is reduced to a thin milk-like liquid. These tiny papillae assist in transferring it to the blood stream and lymphatic system, from which point the body cells absorb it as needed.

Function of the Small Intestine:

Mainly the small intestine finishes the work of extracting from the food the essential proper-

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ties for body use. This is accomplished as a result of chemical action, and by the churning and kneading of the food bolus by the peristaltic motion of the intestine walls. This kneading process perfects the saturation and moves the bolus along to the large intestine, where the waste is separated from the remaining values and prepared for evacuation. Many kinds of foods are never digested until after they reach the small intestine.

Intestinal Health:

When the walls of the small intestine lose their tone, or when irrational food mixtures are taken continuously, the movement of the food bolus is retarded. It becomes slow, sluggish, and irregular. Clogging is the result. Decomposition begins, and as the poisonous mixture and gas are formed, they are absorbed into the surrounding tissues and eventually carried to all parts of the body. The food which should have been a source of energy, now becomes a poison. Mental dullness, toxic headaches, lassitude, muddy skins, yellow eyeballs, skin eruptions, intestinal ulcers, so-called catarrh and other kindred ailments are directly traced to

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careless dietetic habits which break down or inhibit the full activity of the small intestine.

Much can be done to prevent intestinal breakdown by the judicious use of foods rich in natural sodium, chlorin, sulphur, magnesium, and hydrogen. If a complete evacuation from the bowels does not take place at least three times every twenty-four hours in a perfectly natural manner you may depend upon it that you are not proficient in the business of living. There is no more important function than that of elimination, and intestinal health is a problem which should demand very careful and thoughtful consideration.

The Large Intestine or Colon:

The small intestine terminates just under the point of the right hip bone. Here the canal widens again to form the colon, or large intestine. This portion of the tract, or canal, follows the line of the body upward along the right side to a point just under the edge of the ribs. From here it bends transversely across the body to the right side, where it turns abruptly back and down, following the contour of the body, to turn again towards the center of the body after

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reaching a point just opposite the left hip bone. The walls of the colon are very elastic and strong. They are replete with many tiny fibers which correspond to some extent to the fibers found in the walls of the small intestine.

The Function of the Colon:

In this section of the canal the food undergoes its final transformation, or is prepared for evacuation. It is lifted up the right colon, moved across the body by way of the transverse colon to the left side, and then down to the outlet at rectum. The action here is much like that of the small intestine; with the same churning, kneading, squeezing characteristics. When the food bolus is not moved along this section of the canal fast enough, poisons are generated at this point, and are absorbed by the surrounding tissues, to be ultimately picked up in the remote parts of the body.

Many forms of germ life exist in the colon and a thorough cleansing is essential to health. It is, however, not good practice to resort to the daily use of enemas or internal bathing. We should develop a natural reaction. Nature intended the colon to clear itself. In the event,

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however, of our inefficiency in the business of living, if the colon becomes impacted with dry fecal matter, it is permissible to cleanse it thoroughly by using the prescribed colon wash (see index). HABITUAL NEGLECT IS THE MOST COMMON FACTOR CONTRIBUTING TO THIS CONDITION. It is well to establish a definite time for the daily evacuation, and then, to stay with the program. The habit is a most natural one and can be formed very readily by anyone. Complete colon evacuation should take place at least three times every twenty-four hours. To prevent costiveness use foods rich in magnesium and hydrogen. Never permit yourself to become so busy that you cannot keep the body clean inside and out.

The Liver and Its Work:

The liver is the largest gland in the body, and like the stomach, it varies in size, according to the individual. It is located in the upper right hand corner of the abdomen, overlapping a portion of the stomach. The structure is very vascular, being about 70% water. It is said that the liver performs about nineteen functions many of them most important in the capture and trans-

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formation of energy. It manufactures bile, and stores it up in the gall bladder ready for use in the small intestine. It washes the blood, cleansing it of waste material; the blood remaining longer in the liver than it does in the heart or lungs. It is a storehouse for energy and blood salts.

So important is the liver in the business of living that a disregard of liver health will eventually bring the owner to the end of his run. Excessive use of heavy proteins, sugars, and starches will clog the liver and saturate it with breakdown material and impair its function. Worry, mental exhaustion, emotional outbreaks of hysterical character and anger will fill it with breakdown phosphorus, and prevent its full cooperation in the general scheme of food transformation. FOODS RICH IN RAW SULPHUR, POTASSIUM, AND CHLORIN ALL CONTRIBUTE TO LIVER HEALTH.

The Pancreas:

The pancreas is sometimes called the "abdominal salivary gland." It is about six inches in length, one and one-half inches wide, and one

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and one-half inches thick. Roughly, it resembles a dog's tongue in shape. It is located back of the stomach, extending transversely across the body. In the center of the gland are found little spindle-shaped projections which secrete the pancreatic fluid.

The pancreas is the central organ of sugar digestion. Common sugars must undergo a decided change before they can be used by the body. This change is chemical in character, and the pancreatic fluids provide the necessary agent. When the pancreas is diseased, sugar will not be digested. If we constantly use sweets and starches to excess, and disregard the mineral salts, the gland will break down under the stress of excess work. It is good practice not to use sugars and starches beyond the amount actually required to maintain the body at a reasonable weight and supply the necessary heat. FOODS RICH IN POTASSIUM, IRON, SODIUM, AND CALCIUM HAVE A VERY BENEFICIAL EFFECT UPON PANCREATIC HEALTH.

The Spleen:

The spleen is about five inches in length,
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three inches wide, and one and one-half inches thick. It is located just above the left kidney, between the diaphragm and the stomach. Like the liver it is very vascular in structure, approximately 76% water. It is known that the spleen has some part to play in the general process of food transformation. It is also thought that it plays an important part in maintaining the blood stream in a state of health. Its functions, however, are not as thoroughly understood as are those of many other organs. We mention it here to complete the study of the digestive system.

PART ONE

Physical Inventory

Chapter 2

The Lymphatic System

The lymphatic system is much like the blood vascular system, inasmuch as each is described as a series of tubes within which circulates a liquid. The fluid held within the lymph system carries less coloring matter than the blood system, and less albumin; the liquid being almost straw colored. In distribution the lymphatic system is almost as extensive as the blood system. At numerous points along the course of the vessels are found little nodules which are known as lymph glands; they are pink-gray in color and are found in great numbers in the various spaces of the body. In the groin, under the jaw-bone, under the skin about the throat and the neck, under the arm pits, and again in the deeper tissues of the body, these little glands go about their work of absorbing and distributing the lymph. The function of this system is

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to collect and convey to the blood stream material required for cell building. Two main reservoirs are provided for storage purposes, from which points the lymph is carried to the main blood vessels near the heart and poured into the stream.

When these glands are very active the body is more vascular than normal. The connective tissues of the body are loose and flabby; muscles are soft. When they become congested and dry, the glands will swell and sometimes inflame. Blood poisoning at any part of the body seems to spread rapidly along the lymph vessel, itself. For instance: blood poison in the foot will spread rapidly up the lymph glands to the groin, and early in the development of the trouble tenderness will be found at that point. When the glands at the neck congest they may be palpated as little hard nodules under the skin. The condition spreads rapidly, and in the event of such swelling it is well to consult your doctor. If it is left too long it may develop into a serious disease, affecting the entire gland system. Diseased tonsils, abscessed teeth, and other infections of the mouth will sometimes infect the lymph glands in that locality.

PART ONE

Physical Inventory

Chapter 3

The Motive Systems

The motive systems are indirectly concerned with the movement of the body, as the name indicates. Included under this heading are the bone system, the muscle system, and the ligament system.

The Bone System:

There are about two hundred and six bones in the human body. Bones are classified as long, short, flat, and irregular, according to their shape. The long bones are found in the legs and arms; the short bones where a great deal of strength, as well as motion, is required; the flat, and irregular bones build the torso and are usually located where great strength and little motion are necessary.

To Maintain Bone Health:

Good healthy bone is essential to long life and

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sustained effort. Good bones make for strength of character, as well as physical endurance. Bone disease results from faulty diet, unless it is the direct result of a deep bruise or some accident that involves the bone itself. Bone is mainly composed of calcium, phosphorus, silicon, manganese, and fluorin. The last four elements are mainly concerned with the covering, and hardening of the bones. The first problem in bone health is the capture of calcium or lime. (See index.)

The Ligament System:

Ligament is used to attach bone to bone and the muscle to bone. The tissue, itself, is highly elastic in character and seems to be midway between bone and muscle in point of development. It partakes of properties characteristic of each. It is about 50% water. When ligaments break down, lose their tone, or become dry and hard, movement is hampered, joints will inflame, and other troubles develop.

Ligament Health:

When the body becomes highly acid and the

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point of saturation is reached, the ligaments suffer along with the other tissues. Sodium is active in ligament development and is essential to ligament health. Persons who are highly alkaline are nimble, quick, and flexible. They enjoy great freedom of motion. To keep the ligament system healthy, live largely on a high alkaline diet, with plenty of foods rich in sodium. (See notes on this subject and food list.)

The Muscle System:

In the body there are a little less than eight hundred muscles. They vary in size from a single line to two feet in length. They are named largely according to shape or location. Each muscle is encased in a tough, moist covering. This arrangement provides protection and permits each muscle to glide easily over or between its associates. Action is constant in some part of the body every moment of life, many muscles being brought into play at every breath. About one-fourth of the entire number are brought into play every time a step is taken. It requires about half of the number to hold the body erect while standing.

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Muscle Health:

Every movement of muscle produces a toxic substance which must be immediately removed from the tissues and transferred to the organs concerned with its removal from the body. If muscles are to remain healthy, this breakdown material must be promptly removed and repair material transferred to the muscle cells. It is an error to build bulky muscles at the expense of other systemic development. Muscle need not be bulky to be healthy. It must be elastic, carry plenty of tone and be constantly renewed by rich red blood. Iron and potassium are both essential to muscle health.

PART ONE

Physical Inventory

Chapter 4

The Respiratory System

For our purpose the respiratory system includes the trachea (wind pipe), the bronchi (bronchial tubes), the broncholes (small divisions of the bronchi), the pleura (two coverings, one for each lung), and the lungs themselves, as well as the heart, blood vessels, and blood. The entire system, with the exception of the blood vessels themselves, is located in the upper half of the body (the thorax) or chest.

The Trachea or Wind Pipe:

This organ of respiration is approximately four and one-half inches in length and from three-quarters to one inch in diameter. It drops straight down the central line of the body to a point between the lungs, where it ends in two main branches known as the bronchi. Its function is to convey air to the cavity of the lungs.

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The Bronchial Tubes:

The bronchial tubes represent the smaller divisions of the trachea. The left tube is longer than the right, being about two inches in length. As each bronchi enters the lung proper, it divides into minute branches. These microscopical tubes enter deeply into the lung tissues to form the air sacs of the lungs; at which point the air is brought in contact with the blood through the thin walls of the structure.

The Pleura:

Each lung is encased in a double sac or covering of mucous membrane, called the pleura. The structure of this sac is very tough and elastic in character and contains many blood vessels and nerves. While breathing, the two surfaces of the pleura glide one over the other. To prevent friction the double surface is bathed in a liquid. When the fluid retained between the layers becomes thick and viscid the free action is prevented. When the pleura becomes the seat of disease and supurates, pleurisy is the result.

It is the function of the pleura to protect the lungs and prevent their collapse. Nature provides each lung with a separate pleura so that in

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the event one sac is punctured, the other lung remains intact and unhampered in its work. Inflammation may spread from some adjacent tissue to the pleura. Chronic chemical irritation, at the inner surface of the pleura, is also a contributing factor to the condition.

The Lungs:

The lungs represent the central organs of respiration. The right lung has three lobes or sections and the left has but two. The heart and other structures are found between the lungs, a little to the left of the central line of the body. Before birth the lungs appear as two solid little masses in the upper corners of the chest cavity. They inflate at birth and expand to occupy the greater part of the thorax. Lung tissue is soft and sponge-like in character, the cell arrangement being so complex that the actual air surface available in the lungs amounts to well over one hundred square yards. Within the minute air sacs of the lungs the oxygen is transferred to the blood stream, and the carbon ash expelled from it, to be carried away from the body.

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Lung Health:

If the lungs are expanded to the limit, the air space increases, the cells are brought into action and the tissues consequently strengthen. Deep breathing is a wholesome habit, as is any other form of exercise which tends to render the chest more flexible. To insure lung health, foods rich in iron, potassium, calcium, and iodine must be included in the diet. (See index for further notes.)

The Heart and Blood Vessels:

The heart is, in reality, a double apartment, composed of two rooms entirely separated by a central wall. One side of the heart handles the blood fresh from the lungs, while the other side handles the blood directly from the various parts of the body. Before birth an opening is provided in the central wall, which divides the two halves of the heart so that the blood is permitted to circulate through the heart without going to the lungs. The placenta provides for the oxidizing of the blood stream before parturation. At birth this opening closes and the blood then begins its circulation through

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the right and left halves of the heart, which procedure continues throughout life.

The blood vessels transfer the blood to every part of the body, where the oxygen is exchanged for the carbon ash and delivery made of the many properties needed by the cells of the body to build and repair themselves. The many details of this important and complex procedure will not be considered here, it will suffice to say that the blood system is concerned with the distribution of oxygen, as well as building material, and blood health is vital to general health. (See notes on iron and oxygen.)

PART ONE

Physical Inventory

Chapter 5

Brain and Nerve System

The brain and nerve system is mainly concerned with the intelligent activity of cell life. We have heard a great deal about cell intelligence, and the theory is held by some that each cell of the body possesses a quality of intelligence sufficient to discriminate food from poison. Rather than subscribe to this theory, we think it more correct to say that the cells function normally only when the nerve provided, carries the impulse from the brain center involved in cell maintenance. It is the nerve system which keeps every cell in the body in touch with the mind. The brain and nerve system includes the brain, the spinal cord and every nerve in the body.

The brain is the central organ of this system. It is composed of highly organized tissue, very delicate, soft and yielding in character. The

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brain tissue is very vascular, analyzing about 86% water. It is protected by three coverings or meninges. The outer covering lies in direct contact with the inner side of the skull and is a tough, blue-white membrane. The second covering is a delicate cobweb-like membrane, and the third, or inner covering, a soft delicate tissue which lies in direct contact with the brain, dipping down into the crevices and convolutions of the structure. Toward the center of the brain, the tissue appears white in color, or grayish-white, while the substance near the outer surface is gray. The brain is the center of consciousness in all animal life.

The Spinal Cord:

As the brain, proper, approaches the base of the skull, it narrows into a prolongation about the diameter of an ordinary lead pencil. The structure remains practically the same, save that the gray matter is now distributed toward the center and the white near the outer surface. This cable-like portion of the brain is called the spinal cord. It varies in length from twelve inches to almost twice that length in some individuals.

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Like the cranial portion of the brain, it is provided with three coverings. To simplify the study it will be well to consider the cord as a continuation of the brain. In fact the cord, as well as every nerve in the body, is simply a continuation of the brain.

The Central Nerve System:

The spinal cord is suspended through the hollow centers of the spinal bones. As it proceeds downward, it gives off about thirty-one pairs of branches. These branches leave the tube by special openings provided for that purpose between the vertebrae. After leaving the bony tube the branches divide, forming two main cables. One pierces the tissues of the back, and then divides and subdivides into many smaller branches. All of the tissues on the outside of the body receive their nerve supply from this source. The other branch enters the cavity of the body where it joins a long loop of nerves found on the inner side of the spinal column. That part of the nerve system which supplies the motive systems of the body is called the "central" or "motive" nerve system.

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The Function of the Central Nerve System:

The central nerve system supplies all the nerves for the bones, muscles, ligaments, and other structures concerned with the movement of the body. It is the transmission line used by the conscious mind which, of course, directs all voluntary functions of the body. This system is sometimes called the "cerebro-spinal" system, because it is developed entirely from the brain and spinal cord.

Sympathetic Nerve System:

On the inner side of the spinal column a heavy chain-like loop of nerve tissue is found. This loop is complete, being joined at the base of the skull and extreme end of the spine. Fibers or branches from the central nerve system contribute to the formation of this chain-like group, or sympathetic system, by which name the loop is known. All the organs within the cavity of the body receive their nerve supply from the combined central and sympathetic systems. The beating of the heart, the movement of the lungs, the digestion and assimilation of the food, all proceed independent of the conscious mind. These involuntary functions, as they are called,

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are supervised and directed by the sub-conscious aspect of the mind. The sympathetic system provides the transmission line over which all this activity is directed.

Relay Stations:

At various points along the nerve system, within the body, are found net-like groups of nerve tissue. In reality, these are relay stations arranged to facilitate the action and speed of transmission between the brain and the remote parts of the body. The largest plexus is located just back of the stomach, and is known as the belly brain or solar plexus. It is a very important nerve center, as branches derived directly from it, reach practically every organ within the body below the diaphragm. A blow directed at this center will render the victim unconscious. The same effect, in a lesser degree, follows when this plexus is depressed by faulty posture. Stand erect. Lift the organs away from the spine. Do not crowd them against it. Devitalization will follow pressure at this point. Especially is this appreciated by individuals who are forced to stand as if "kinked in the middle" by adhesions or accident which prevent correct posture.

PART ONE

Physical Inventory

Chapter 6

Ductless Glands

The physical inventory would be very incomplete unless it included a brief study of these mysterious masters of destiny.

Like an autocratic council of governors, they super-impose their decisions. If we are to believe half that is said to be true of them, they are the absolute dictators of life and being. They decide what we shall look like, and how we shall conduct ourselves. Of late years they have been the subject of intense study and investigation. It is true, perhaps, that they exert a tremendous influence in our lives, and their health is a paramount factor in the business of living.

These glands are insignificant in appearance, minute in size, and for many years were entirely overlooked as an important part of anatomy.

There are many glands within the body, but the particular groups with which we are con-

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cerned are classified as the ductless glands. They are called ductless, because they have no direct outlet; they are not drained or fed by a tube or other structure of this character. In general, they may be considered as a group of chemical laboratories; and while they are not anatomically connected, one with the other, it appears that they work in complete harmony, one with the other. To simplify our problem, they may be accordingly spoken of as a chain of body drugstores. Their particular business is to manufacture and secrete special substances needed by some particular part of the body for a special purpose.

Just how these substances are distributed from the gland to the various parts of the body is not so easily explained. It is assumed, however, that the material is caught up by a process of osmosis, eventually arriving at the blood stream, or in some instances the lymphatic stream. By this method it is then conveyed to the remote parts of the body, where it proceeds to bring about and to make possible the chemical reactions responsible for the health and well-being of the structure itself.

For our purpose, we shall consider the glands

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as individuals, and also as a group: their function is so interlocked and related that it is almost impossible to separate them in a final analysis if we are to consider them as a factor in mental and physical well-being. The glands are located at various parts of the body and for the purpose of conveying a sense of location, we present them from the head down.

PART ONE

Physical Inventory

Chapter 7

The Pineal Gland

The pineal gland is a cone-shaped, reddish-gray little body deeply imbedded behind the third ventricle of the brain, almost at the center line. Because of its particular location it is difficult to make a complete study of its action during life. Only by comparative study can we arrive at its characteristic changes and perhaps find a clue to its function as a factor in health and disease.

The student must remember that there are very many peculiar manifestations which are discussed and embodied under the heading of disease. Some of these symptoms are readily recognized as resulting from a definite source. Other symptoms may appear that do not harmonize with any pathology known. When these out-of-the-ordinary symptoms appear, a continuous effort is made to establish their cause.

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Very often this gland is studied after death, with this idea in mind. It can be said, however, that very little is actually known as related to its definite function.

Although it is conical in shape, in fact having much the outline of a pine cone, this little body gets its name from tradition. It is supposed to be all that we have left of a third eye which we were supposed to have used, or possessed, during a certain period of our evolution. The rudiments of a single eye located in the central area of the top-head, is found in a certain class of lizards of similar name to the gland, which accounts for the expressed relationship. This rather fantastic idea is at least intriguing, especially to the abstract mind, because it forecasts the possibility of additional vision and perception through sight. It can readily be seen that at some time or other, a visionary investigator may anticipate the renewal of pineal activity in harmony with the original conception, and build out of that a very fascinating story of "hidden things made known," but, of course, for our practical purpose this idea may, or may not, have a definite value.

We are mindful, also, that any number of us

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hesitate to completely accept the idea of evolution as ordinarily understood. It is distressing to think that we came up from fish, lizards, or monkeys; but it is more distressing to discover that we often behave like fish—we are called lizards occasionally, and we make monkeys out of ourselves altogether too often. It is really not important that we accept this theory; it is important, however, that we at least have a vague idea of this and other minute body structures which have a very definite bearing upon our health and welfare.

As a matter of fact, very little is definitely known as to the function of this little gland. We are not in position, because of our lack of exact information, to intelligently prescribe for our business needs in this particular department. We simply cite here the existence of the gland for the purpose of completing the picture. Eventually, however, we do anticipate some very dependable and definite information about this fascinating little gland.

PART ONE

Physical Inventory

Chapter 8

The Pituitary Gland

This gland is a little vascular body, weighing about ten grains. It is reddish-gray in color and located within a little saddle-shaped crevice of the sphenoid bone. The sphenoid bone is simply one of the irregularly shaped bones which form the floor of the skull. To better appreciate the location, think of the floor of the skull as being the roof of the mouth. The location of this little gland then, would be relatively along the center line of the floor, at the base of the brain.

In late years students of endocrinology have attributed a great deal of importance to this gland. Pituitary deficiency gives rise to many distressing conditions affecting the growth and development of the body. At this point it may be well to remind the student that practically all chronic conditions of disease within the body arise from two causes; one we speak

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of as "mechanical irritation," and the other as "chemical irritation." To further clarify this statement, think of the pituitary body as being located in a little saddle-shaped crevice of a bone. It is not difficult, then, to create a mental picture of this little body being too large for the crevice in which it must rest. If this were true, then we could say that a mechanical irritation prevented the full activity and development of this gland. In fact, such a condition as this sometimes maintains, and when it does exist, it gives rise to disease characteristics of profound nature, the correction of which is practically impossible.

On the other hand the gland may be perfectly located as far as the relationship of the bony cavity, and the gland, itself, is concerned, and for some reason or other fail to function properly. This condition would then be the result of chemical irritation. It may be minus or plus, in that the chemical balance may be excess or deficient. Regardless of the character of interference, whether chemical or mechanical, if the gland fails to function the effect is far-reaching and very distressing in character. All of us, at some time or other, have stood in the crowd be-

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fore the side show banners, or perhaps we have passed down the midway of Coney Island or a smaller carnival, and we have heard the "barker" ballyhooing, "the lion-faced girl," or, "Jo Jo, the dog-faced boy," and perhaps we have heard another version, "Zu Zu, the ugliest woman in captivity." We have wondered what could have caused these poor unfortunates to appear as they do. The reason for their grotesque appearance can be found in pituitary disease. Giants and dwarfs are all pituitary unfortunates. If for any reason at all this gland is prevented from a complete expression, hideous changes, as related to symmetrical development, always appear.

While the above cited cases may appear rather extreme, pituitary inefficiency is not an uncommon condition. In any number of large cities we have found as many as twelve to fourteen cases of pituitary disease on the street, in less than one hour of contact. You, too, have seen them, but perhaps did not know just why these people appeared less refined in physical characteristics than yourself. You recall watching a rather large individual entering a street car; you noticed that the motion was awkward and

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clumsy, and that the hand, grasping the rail of the car, had a peculiar appearance, it was spade-like, coarse and broad, with fingers terminating in ball-ends. You were particularly struck with the coarse character of the skin, its gray, muddy color, the deeply pitting pores. You noticed the sagging cheeks, and perhaps, as well, the appearance of abnormal hair on the face; the nose was broad, with ball-like end, eyebrows heavy and shaggy, and the hair growing low down on the forehead. Perhaps you felt just a little tinge of pity and at the same time wondered what could have been the reason. This is a less extreme picture of pituitary deficiency.

Acromegaly, a disease characterized by an animal-like appearance, spade-like hands, extremely coarse skin, and a heavy unproportioned appearance, is the result of pituitary deficiency.

Myxedema is a second manifestation. This disease is characterized by general infiltration of a heavy serum-like liquid throughout the body; the tissues fill with this thick mucous-like substance, and the general appearance is as if one were the victim of a general dropsy. Fortunately, these diseases are not extremely common, but it cannot be said that they are alto-

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gether infrequent in occurrence. Pituitary health makes for symmetrical development of body and brain. As far as we know now, the best possible insurance against pituitary breakdown is a diet which provides abundant vitamins and minerals.

It has been recently discovered that this gland manufactures and secretes at least four different substances or agents. The effect of these newly discovered principles is almost universal in that it affects practically every system and function of the body. Until further demonstration has been made, our conception of this gland will confine itself to the well-known actions which we have described. There is still much to learn about the ductless glands.

PART ONE

Physical Inventory

Chapter 9

The Thyroid Gland

This gland sets astride the wind pipe, or trachea, at the base of the neck. It is usually composed of two lobes, but very often a third, or central lobe appears. The gland is rather sponge-like in texture, and within recent years has been the object of extensive study and experiment. Its location provides for more complete study than many other glands. The frequency with which thyroid disease appears, provides an incentive for intensive study. When considered as a part, or unit, of the ductless gland system, the thyroid, perhaps, occupies the most important and outstanding position. The effect of thyroid deficiency is alarming in its extent and frequency.

The thyroid manufactures and secretes thyroxen or body iodine.

Thyroid deficiency, or rather iodine defi-

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ciency, is a national problem, manifesting itself over a wide-spread area in growing children and adults alike. Deficient iodine in the diet will cause this gland to swell and enlarge. The effort seemingly is to recapture any possible trace of food iodine which may be used again, or perhaps had escaped capture at the first opportunity. We call this condition goiter. Every woman fears goiter, not only because it is unsightly, but because of the serious effect upon general health which is part of the disease. Although the thyroid is always affected in goiter, the disease manifestation is not always the same. In some instances the gland will seemingly become more vascular and will appear as a sagging, rather shapeless mass. The whole tissue is infiltrated with liquid. We call this condition simple goiter.

In fibroid goiter, a gristle-like tissue will develop throughout the gland. The appearance then, is as if a hard, clearly defined object had been inserted under the skin of the neck.

The gland, itself, is subject to infection and may become toxic. This condition is called a toxic goiter.

Again the manifestation may be entirely op-

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posite. A tightening of the lower border appears and produces a sensation of constriction. The patient finds it difficult to rid herself of the idea that she is being gradually choked. The blood vessels which lead to the head are prevented from completely relaxing, and the heartbeat is quickened until it races at a terrific speed. Fatty substances develop back of the eyeballs and the eyes appear to bulge. This condition is called exophthalmic goiter. It is generally conceded that the last named type is not the result of iodine starvation, but is the result of an opposite condition. In certain regions where the soil contains plenty of iodine, this disease will occasionally appear, but it is seldom, if ever, found in localities where iodine is not distributed abundantly in the soil or water. Simple goiter, and fibroid goiter are both manifestations of iodine starvation.

Occasionally children are born without sufficient thyroid, and in this event their short existence is deeply tragic. These are the poor unfortunates whose bodies remain toad-like in appearance, useless so far as voluntary action is concerned, and whose features are hideous in their idiotic expressions.

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The thyroid becomes active practically as soon as the baby is weaned and the importance of its function increases as the diet of the child changes. It must be remembered that general health is largely a problem in chemical balance, and that the gland system as a whole provides for that balance. The interlocking character of gland activity is appreciated when we actually contact the characteristic changes of life.

It has been repeatedly noted that goiter appears more frequently in women during the adolescent age, pregnancy, and the menopause. The reason for this can best be explained by conceiving the interlocking aspect of the glands as a whole. At the adolescent age the gonads reach maturity, and begin to exert their influence as part of the ductless gland chain. This influence manifests itself in the body structure by introducing an alien hormone into the system. It is as if another director had been added to the personnel of the body management. Adjustment is necessary if the balance is to be maintained, and the thyroid seems to be the medium through which the adjustment is brought about.

Another interesting fact is the resignation of the thymus, which happens at this period. The

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thymus gland goes out of the picture when the gonads come into it. It may be possible that up to this time the thymus has acted as the agent of chemical balance.

The relation between the thyroid and the gonads, or reproductive glands, is evidenced by the fact that abnormal thyroid activity will manifest itself in sex disturbance, impotency, or errantive behavior. The effect of thyroid inactivity at the adolescent age is far-reaching in character. If the thyroid fails in its duty at this time, maturity is retarded, the mind becomes dull, consecutive thought is impossible, muscles twitch and jerk, distorted thoughts and ideas occupy the mind, and altogether the picture is decidedly uncomfortable. The effect may extend into later periods, and manifest itself during pregnancy or the menopause by the appearance of obscure symptoms which are difficult of correction.

During pregnancy ovulation ceases, or in other words the gonads become inactive, and to all intents and purposes have resigned their dictatorship. This again throws the entire glandular system out of balance, and the adjustment falls on the thyroid. Goiter frequently appears

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at this period and disappears after the baby is weaned, at which time the gonads again become active.

When the menopause, or change of life, as it is sometimes called, appears, the gonads again cease to function. They are no longer active agents in body chemistry, and the burden of adjustment falls to the thyroid. Failure of the thyroid at this time is a contributing factor to many of the distressing symptoms from which some women suffer during this period. We cannot stress too highly the need of thyroid health as a paramount issue in general health.

The subject of iodine starvation and thyroid health is rather extensively treated as part of our study of the chemical inventory, and it is respectfully suggested that the student give it due and careful consideration.

PART ONE

Physical Inventory

Chapter 10

The Parathyroids

These little glands appear as a tiny chain of beads strung along the wind pipe, below the thyroid. They were discovered in 1880, and because of the similarity of their function as compared with the function of the thyroid, they are sometimes spoken of as "accessory thyroids". They are much smaller than the average size pea and are arranged in pairs. Small as they may seem, they are so vital to health that they may not be removed without causing death to the patient; the end usually appearing from ten to fourteen days after the removal. It is preceded by muscular convulsions, loss of hair, nails, and teeth, and the appearance of cataracts over the eyes.

These little glands establish our ability to capture the lime from the food we take into the body. They manufacture and secrete certain

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potent agents which chemically establish this possibility. When these glands fail for any reason whatsoever, or are forced to work half time, teeth do not develop, bones do not form properly, calcium metabolism is proportionately impossible. Rickets appear as a result of parathyroid insufficiency, and the close relationship existing between Vitamin D and the action of this gland leads us to believe that Vitamin D is the activating principle of the parathyroids.

This subject is treated more fully under the study of vitamins, to which the student is respectfully referred.

PART ONE

Physical Inventory

Chapter 11

The Thymus Gland

The thymus gland is located behind the breast bone, or sternum, and is known as the gland of childhood. It is active from birth, gradually increasing in size and capacity until adolescence is established. During the age of puberty it is more active than at any other time. When mature or adult development is assured, the gland gracefully retires from active practice, its product apparently no longer necessary in the general scheme of things.

As we view it, its main object is to establish the chemical balance during the period of growth. When it retires from the picture, increased activity of the thyroid is apparent.

PART ONE

Physical Inventory

Chapter 12

The Adrenals

The adrenals are found one above each kidney. They are flat, bean-shaped glands, small in size but important in function. Their particular business is to manufacture a secretion called adrenalin. The purpose of this secretion is to establish muscle tone, particularly as associated with the heart. When these little laboratories are forced to work half time, the heart is slow, sluggish, and indifferent. The effect of this, of course, is felt throughout the entire system. Ambitions are dulled, a willingness to exert oneself is diminished, we become doormats instead of diplomats.

These glands are sometimes called the glands of combat because they contribute physical stamina to back up the individual's aggressiveness. Where we find an abundance of vitality, both physical and mental, a love of motion, a two-

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fisted fighting existence and the joy that comes from sustained effort, without fatigue, we always find healthy adrenals.

When we are unwilling to face an issue, involving our own personal safety, then we may know that we are not in a state of health as far as the adrenals are concerned, in fact, we are suffering from adrenalin insufficiency.

PART ONE

Physical Inventory

Chapter 13

The Gonads

Until the time of puberty, the glands thus far mentioned represent the active chemists of the body. Each one is busy all day long manufacturing for, and providing the blood stream with, certain compounds needed by some particular organ, or part of the body. The body activity is carefully regulated through their influence. At the age of puberty another set of glands come into action. They are called the gonads, or secondary sex glands.

In the female these glands are called the ovaries, and in the male the testes. The ovaries, two in number, are located low down in the abdominal cavity, one on each side. The testes are retained in the scrotum of the male. The ovaries give rise to all the female characteristics, such as a widening of the pelvis, fatty deposits around the hips, enlargement of the

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breasts, etc., as well as the high-pitched voice.

The testes give rise to the male characteristics such as the peculiar distribution of hair over the body, the low-pitched voice and the general masculine appearance.

When these glands become active children are subject to many impulses, thoughts, and physical reactions unlike anything they have previously experienced. A proper diet at this age will do more to insure sex health than any other one thing.

The important thing to remember about the ductless gland system is the fact that the balance is interrupted when any one gland or set of glands, becomes inactive, or relatively inactive for any cause. They are so interlocked in the general scheme of things that the health of all is interrupted by the failure of one. Gland health is a problem in the capture of vitamins and minerals from the food taken into the body. It is principally concerned with vitamin B. 1, and E.; A, of course. exerting an influence—and as far as minerals are concerned, with iodine, iron, potassium, silicon, phosphorous, and calcium.

Part Two

CHEMICAL INVENTORY

PART TWO

Chemical Inventory

Chapter 1

Why We Eat

Living to eat is bad business—eating to live is good business. The difference between the two is the difference between physical bankruptcy and profitable living.

There should be a definite reason behind every food purchase; on second thought, there usually is a reason, but it is not always an intelligent one.

The most important item governing food selection should be concerned with ACTUAL FOOD VALUES. Taste and appearance are important, but these should be anticipated in terms of natural flavors and cleanliness.

How many hundreds of times have we “tuned in” on the food shopper to our utter bewilderment. We have discovered that tons of food-stuffs are purchased every day for the following reasons: “It looks lovely,” “We just love it,” “They say it’s good,” “The children rave about

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it," "George is so fond of it," "We wouldn't eat a meal without it," "Jim was raised on it," "It's so easily prepared," "So delightful for a quick lunch," "Good as anything, I guess," "What difference does it make," "It helps to fill up," "It is fifteen cents cheaper,"—and a hundred other reasons just as silly.

How many hundreds of times have we longed to discuss this food problem with these good souls. Most likely that which "looks lovely" is without actual value, and that which "we just love" is the very thing we should not eat. Possibly the food "the children rave about" is responsible for their poor teeth and bone development. It is a safe venture that "George" would be better off, without his favorite dish, because most likely that is the very thing that is clogging his kidneys and making him irritable. Perhaps "Jim's" chronic catarrh can be directly traced to his persistency in demanding the thing that "he was raised on." The food which is "easily prepared" is frequently pre-cooked, and completely devitalized. Quick lunches are wonderful sources of indigestion. Our indifferent reasons for purchasing food, because it is "as good as anything," or "what difference does it make,"

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simply proves our mental laziness, and the very idea that "it helps to fill up" speaks for itself. Unless we can find better reasons for eating than any of the above, we may as well discontinue the practice altogether.

Food should be selected for its ENERGY VALUE, STRUCTURAL VALUE, and FUNCTIONAL VALUE. It should be prepared with the intent to conserve these values in their natural form and combination.

Energy values are measured in terms of heat units or calories.

Structural values are measured in terms of proteins and minerals.

Functional values are expressed in terms of mineral salts and vitamins.

All foods have some energy value, as carbon is always found as an essential part of all food. Many foods rich in energy value are deficient in structural or functional value. This is particularly true of carbohydrates. These foods are composed almost entirely of carbon, hydrogen and oxygen. Because of their simple composition and the nature of their value, they may justly be called "simple fuel foods." Their contribution to the problem of profitable living is energy

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in the form of potential heat. Foods of this class should be selected because of the potential energy which they contain and which may be absorbed or captured by the body.

During every moment of life energy is being dissipated and our overhead in this respect is alarming. Living is rather a complicated business after all. In addition to our repair bills, our supplies and general operating costs, we are compelled to provide power or energy for every department concerned with the Business of Living. Inasmuch as our business runs twenty-four hours every day, we must have plenty on hand for emergency, if we expect to keep the doors open.

It is sometimes quite difficult to appreciate where all this energy goes, and why it is essential that we capture a certain amount of it every day. Our need in this respect is appreciated when we stop to think that we must provide energy for over eight hundred muscles, many of which are in a continuous state of motion and therefore constantly dissipating, or using energy.

We must see to it that enough power is provided to "wash, aerate, and deliver four quarts

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of blood to every part of the body twice every minute day and night." We must provide power for the expansion and contraction of about ninety square yards of lung space, eighteen or twenty times every minute of life, and, as well, move an enormous amount of carbon ash from them.

There are thirty feet of intestine to keep on the jump, filtering plants to operate, a complete chain of chemical laboratories to keep busy, miles and miles of transmission lines to keep operating, to say nothing of numerous factories, distilleries, and mechanical plants all necessary to the Business of Living.

It is, or should be, very apparent that our overhead in this respect—the mere problem of providing power with which to operate—must be taken care of and the energy provided. All the energy we use must be captured from the food we take into the body. This, then, discovers for us one reason why we should eat. **WE MUST CAPTURE ENERGY.**

Another peculiar thing about this Business of Living is the fact that we are not only compelled to direct our own business, but also supervise the running of several subsidiaries, provided, of course, that we are fathers or mothers.

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Right now, more than four million growing businesses between six and fourteen years of age, are jeopardized by our inefficient management. It is appalling to think of it, but more than four million children of school age are undernourished, according to recent reports furnished by the United States Board of Education.

Every business which continues as such, finds it continuously necessary to repair and keep up the equipment. It is poor business to permit things to run down. All machinery wears out, repairs are constantly needed, even the buildings themselves require daily attention. It so happens that the Business of Living is no exception to the rule. Our repair bill is a big item because we are forever tearing down and rebuilding.

For the first thirty years of life, we must finish building about two hundred and six bones, for when we take over the Business of Living, these are not bones at all, but something much less serviceable and durable. It naturally follows that we must capture, in usable form, plenty of bone building material if we intend to protect this whole structure from collapse.

Recent surveys indicate that bone breakdown

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in adults is on the increase; to say nothing of such an important item as ten million defective bone structures in children of school age. This means that some ten million young corporations, for whose development we are responsible, need some expert attention. A sensible, sane selection of foods which provides building material is imperative if we expect to correct it.

Twice every thirty days we are compelled to capture building material for thousands of tiny "barges" that float through the blood stream, heavily laden with their cargo of oxygen on the outgoing trip, and equally loaded with carbon ash on the return trip. These little "barges" are commonly known as red corpuscles. They are forever wearing out, they last about ten or fifteen days, at which time they must be replaced. Failure to replace them undermines the whole Business of Living, for upon these little "barges" depends the cell building of the body.

Once again we are confronted by the effect of our mismanagement. About 75% of American women are more or less anaemic, to say nothing of the thousands of children who are below the border line in blood count.

No business is complete without an efficient

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system of communication with the outside, as well as from one department to another. This intrinsic network of sensitive fibers—miles in length—must be kept in a state of vital efficiency. Upon its responsiveness depends much of our success as an organization. Even the failure of a single line may result in the complete paralysis of one branch of our business. The messages from headquarters must be transmitted rapidly and correctly interpreted, if we expect to survive as a healthy organization. The whole system must be kept in a state of accurate repair. Our failure to appreciate and intelligently discharge this obligation is responsible for the fact that we are sending to insane asylums in the United States more than 500,000 individuals every ten years. The repair material for this entire system is provided by the structural values found in natural food, pure water, and sunshine.

The foregoing is just a partial list of our every day repair bill. We have said nothing about muscle or ligament repair. We have not mentioned a very intrinsic sewage system which provides for cleanliness. In fact, we have merely touched the outer rim of our repairing and building program. We now discover a second

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reason for eating. WE MUST ACQUIRE THIS REPAIR AND BUILDING MATERIAL.

Another interesting fact that asserts itself is that this Business of Living is a sort of an automatic affair, at least so far as our consciousness is concerned. It proceeds purely as the result of chemical action and reaction. The natural building and energizing values found in foods must be captured from them and transformed into vitality and living tissue, if we are to survive as an organization. This is a problem in chemistry.

To clarify the point further, all the fats taken into the body must be turned into soap before the body can use them. This is a problem in chemistry.

All the sugars, and especially those of unnatural character, must be turned into glucose before they can be used, and this, too, is a problem in chemistry.

The lime or calcium found in food with which we build bone, must be captured from the food by a chemical process.

The oxygen used by the body must be cap-

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tured from the air by chemical attraction. REGARDLESS OF ITS NATURE, FOOD VALUE IS CAPTURED AND TRANSFORMED INTO LIVING TISSUE AND VITAL ENERGY AS A RESULT OF CHEMICAL ACTION WITHIN THE BODY. FOOD IS THE NATURAL SOURCE OF CHEMICAL SUPPLY. If we fail to introduce these chemicals into the body, or fail to provide the body with the chemical substances needed for the transformation of these values, it naturally follows that we are not going to have them available for structural or energizing purposes.

A third reason for eating now asserts itself. In addition to the capture of potential energy and building material, WE MUST CAPTURE OUR DAILY SUPPLY OF CHEMICALS with which to operate or run the body.

For the purpose of clarifying this seemingly difficult problem we are going to take a chemical inventory of the body, find out just what each part is made up of, and how these various chemicals are supplied. The Modern Chemist has provided us with a host of strange relatives.

PART TWO

Chemical Inventory

Chapter 2

The Composition of the Body

Chemically speaking, the body is developed mainly from sixteen basic elements, or substances. The material entering into its makeup is common in kind, with that of all organized life, as well as the environment in which it lives. The following chemical analysis provides an index for actual body composition after death. It must be remembered, however, that during life, many of the elements listed are used in appreciable amount, and the supply captured and exhausted as life proceeds. It follows then, that the amount of each element listed here represents that which has remained in the body for a period after death. It is anticipated that these figures would vary to some extent if it were possible to compare them with the actual composition of the body in life.

The body is a semi-liquid mass. The follow-

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ing table is provided to give you a complete picture:

Amount of Water Found in the Body:

Infants	70%
Adults	60%
Dentine	10%
Elastic tissue	50%
Spleen	76%
Kidney	83%
Vitreous humor	98.5%
Fat	20%
Liver	70%
Pancreas	78%
Brains	86%
Bones	50%
Muscles	75%
Blood	79%
Saliva	99.5%

A prominent German Chemist found the following amounts of each element in a body, the total weight of which was 160 lbs.:

Oxygen	89	lbs.
Carbon	45	lbs.
Hydrogen	15	lbs.
Calcium	4	lbs.

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Nitrogen	2 lbs.
Phosphorus	2 lbs.
Chlorin	1¾ lbs.
Fluorin	3¾ oz.
Sulphur	3¾ oz.
Potassium	3¾ oz.
Sodium	3 oz.
Magnesium	2½ oz.
Iron	2 oz.
Silicon	1¼ oz.
Manganese	½ oz.

A body weighing 150 lbs., yielded the following—analysis made by a prominent American Chemist:

Oxygen	85 lbs.
Carbon	43 lbs.
Hydrogen	12 lbs.
Calcium	4 lbs.
Nitrogen	2 lbs.
Phosphorus	1¾ lbs.
Chlorin	¼ lbs.
Sulphur	4 oz.
Fluorin	3 oz.
Potassium	3 oz.
Sodium	2½ oz.

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Magnesium	2	oz.
Silicon	1	oz.
Iron	$\frac{1}{2}$	oz.
Manganese	$\frac{1}{2}$	oz.

This chemist lists no Iodine but reports a trace of copper.

An analysis taken from "Rational Diet" by Otto Carque, shows the following:

Oxygen	90	lbs.
Carbon	36	lbs.
Hydrogen	14	lbs.
Nitrogen	3	lbs. 8 oz.
Calcium	3	lbs. 12 oz.
Phosphorus	1	lbs. 14 oz.
Silicon		$\frac{1}{4}$ oz.
Chlorin	4	oz.
Sulphur	$3\frac{1}{2}$	oz.
Potassium	3	oz.
Sodium	$2\frac{1}{2}$	oz.
Fluorin	2	oz.
Magnesium	$1\frac{1}{2}$	oz.
Iron	$\frac{1}{6}$	oz.

Traces of Manganese, Iodine, Aluminum, and Arsenic.

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The interesting angle of the above tables is not concerned with the slight differences in the total amounts as shown, but rather with the thought that we are actually created out of the earth. This magic transformation is rather complex.

In our attempt to understand this riddle of Nature, we study three forms of life: Bacteria, Plant, and Animal.

Bacteria represents the simplest form. They are described as minute organisms of simple character. They exist everywhere. Some of them vaguely resemble certain forms of plant life. Others vaguely resemble certain forms of animal life. Whenever we hear the word "bacteria," we usually associate it with disease, or filth, when, as a matter of fact, there are thousands of bacteria that have nothing to do with disease or filth. For our purpose, we are simply going to consider the whole classification as the lowest form of life, and refer to them as a class of living things in general.

Bacteria, like other living things, must absorb from their surroundings the properties which provide for, and sustain life. The air is filled with bacteria, and that is true, also, of

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water and of earth. Many unrefined substances are found in water, also in air, the crust of the earth being largely composed of them in a mineral form. When bacteria are found in the earth, you may depend upon it, they are living upon the things out of which the earth is composed. These basic substances are picked up by the bacteria, utilized as food, for the sustenance of life, and then thrown back into the earth. This process of refining is spoken of as bacterial activity and represents the first step in the problem of transforming the crude, unrefined substance of the earth into living tissue.

Plant life absorbs these earth substances only after they have been refined by the bacteria. The roots of the plant pick them up from the soil and build them into stems, leaves, and fruit. This intrinsic building process further refines them, so that they now appear as living plant tissue. As plant tissue, they are now ready for the final transformation.

Animal life is constituted to absorb from plant life, the same basic elements which the plant in turn has captured from the earth substance. If it were not for bacteria there would be no plant life, and if it were not for plant life,

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there would be no animal life. Thus is all Creation linked together.

Each form of life eventually returns the substance out of which it was composed, back to the earth, to provide again for the reappearance of other units of life. The earth substance surrenders to bacteria, the bacteria surrenders to plant life, plant life surrenders to animal life and animal life in turn surrenders to the earth. Each form of life "borrows" for a time the substance needed to sustain itself and in the end gives it back. This process perpetuates Creation.

PART TWO

Chemical Inventory

Chapter 3

Carbon, the Great Fuel Element

The elements of the earth, like the folks who live upon it, are seldom found alone, and just like people, some are more sociable than others, and naturally get about more; some too, are rather "high-hat" and carefully select their associates. Carbon is decidedly common; it plays no favorites, draws no color-line and is equally at home as a diamond or a lowly stick of graphite. It rests content and inert, deeply beneath the surface of the earth as part of every coal bed and every subterranean lake of oil. In soil and rock it plays its part. It is found everywhere and appears in many complex forms.

It has been called the "cradle of creation," because of its pronounced associative powers, and more especially because it supports all organized life. It has much to do in a direct way

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with the transformation of inorganic substance. It, however, does not apparently possess the ability to spend or dissipate itself. It is always acted upon by other elements, and lends itself as the medium through which life is made possible. It is by nature a slow inert sleepy element.

Chemists isolate about forty-five pounds of carbon in the body after death. It is found combined with other substances as an actual part of the tissue. It is constantly being burned in the body and the ash thrown off by way of the lungs in the form of a carbon gas. Carbon is the element primarily concerned with body energy. It is an essential factor in the production of heat; not that the carbon, itself, generates the heat, but rather that it is acted upon and burned principally as a result of oxygen contact. Carbon is the fuel element of the body.

With this thought in mind, it is not difficult to understand why dieticians should manifest a keen interest in the fuel value of foods and the actual needs of the body in this respect. All foods contain carbon and early in the study of dietetics we were confronted with the problem of measuring, not only the amount of potential fuel value in foods, but also the amount of fuel

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or heat needed by the body under various conditions and circumstances.

For the purpose of arriving at definite conclusions, a method of measuring the potential heat value of foods, and, as well, the body needs, has been devised. We speak of that unit of measurement as a calory. A calory is nothing more or less than a measurement of heat. As the result of investigation it has been determined that the body requires about 1,700 heat units (calories) per day to sustain life. Or, in other words, this amount of energy in the form of heat is used by the body, itself, independent of the amount required to sustain voluntary action. It is likewise estimated that fifteen calories are required for every pound of weight to support muscular activity. Individuals who use the muscular structure to excess require from twenty to twenty-five calories per day for each pound of weight. With these figures in mind you can readily determine the daily requirement of heat energy for individuals in sedentary occupation, as well as those doing heavy physical work. If your occupation is sedentary in character, your requirements will be 1,700

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plus 1,500, if your weight is 100 pounds. If your work is physical in character, add twenty calories for every pound of weight over and above the necessary 1,700.

While the above requirements are usually accepted as standard, our experience has convinced us that the calory intake can be materially reduced below these figures to very good advantage. We have found that in the average individual basic metabolism is amply taken care of if 1,000 calories are provided for this purpose instead of 1,700.

Like everything else, associated with human activity, the calory problem may be considered as relative as far as the actual figures are concerned. Individuals vary. They cannot be poured into a universal mould and entirely duplicate each other either as to physical characteristics or physical expressions. Some require more energy for a given purpose than others. Some do not capture energy as readily as others, none are they provided with equal storage capacity. There are too many lost motions between the energy values of foods and the actual expression of that energy in human activity. All figures given must therefore be considered

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as approximate, and their use and application placed on a personal basis.

Basic metabolism is an expression used to explain a rather lengthy procedure. The word metabolism combines the meanings of two kindred words, "anabolism" and "catabolism." The first means "building up," the second "tearing down." The body exists in a state of health when these two actions are harmonized. The word "basic" may be accepted as having its usual meaning.

We then interpret the whole expression as conveying the thought that energy is required to accomplish this constant building up and tearing down. We incorporate with that, the idea that energy is required for digestive activity—that energy is actually spent in running the body while it remains at complete rest. We call this combined procedure "basic metabolism." It is important that metabolism proceed at a normal rate. If for any cause it is retarded or interrupted, the effect may manifest itself in a dozen different ways. Devitalization is a common symptom resulting from carbon starvation. Anemia and tuberculosis often follow a prolonged disregard for basic carbon needs.

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Nature has provided for the conservation of potential energy. Excess within reasonable limits is transformed and stored in the liver to be drawn upon when needed. Fat is another method of energy storage. It must be understood that this faculty is not equally developed in all individuals. Some have an immense capacity, others very little. You are the best judge as to your own proclivities in this direction, and a common-sense conception of the character and function of carbon or fuel food, plus a careful check as to the calory intake, is all that you need to protect yourself against excess or deficiency.

It has been our further experience that the average individual now-a-days will be amply energized if the working energy is supplied at the rate of ten calories per pound instead of fifteen, provided the functional and building needs have been incorporated in sufficient quality and quantity.

The great good to be gained by closely checking the calory intake is the protection against acidosis. The end product of fuel food is acid, and excess will in the majority of cases express itself as acid, instead of increased vi-

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tality. People engaged in sedentary occupations, where the work is largely mental, will find that 1,000 calories for basic needs, plus ten calories per pound of weight as a working surplus, to be ample for every requirement. They will at the same time guard against increased weight and acidosis.

One of our National dietetic crimes is our persistent habit of loading a lot of wood and coal into the "furnace" and then failing to light it. The carbon intake will be of value to you in providing usable energy only insofar as you provide for its combustion by the proper selection of foods rich in potassium, iron, and sodium. When we disregard this law and insist on a regular supply of carbon foods, the body becomes highly acid. The symptoms of a high acid condition are well known to most of us. We usually express them in terms of "indigestion," "acid eructations," "heartburn," and "gas." An acid condition within the body gives rise to a great many distressing symptoms. It predisposes the body to painful inflammatory conditions. It is most likely a pronounced factor in the formation of ulcers, and catarrh. Vital

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resistance is reduced by it. The tissues are clogged with poison. We become tired, listless, and sluggish.

Perhaps more important than this is the fact that our calcium supply is rapidly exhausted. Sugar and calcium unite very readily and excessive use of sweets will reduce the calcium supply below normal requirements. It is impossible for children, especially, to grow strong, healthy bones, and firm, sound teeth, when the carbon supply exceeds requirements. Bone breakdown and decayed teeth are just two more problems in carbon saturation. Carbon supports germ life, and a carbon saturated body invites germs of all sorts. Pimples, puss cells, and skin eruptions appear. Again we find carbon saturation responsible for a systemic breakdown of very profound character.

The Pancreas, sometimes called the abdominal salivary gland, provides for the transformation of sugars and sweets, and when they are used in excess the Pancreas is forced to work overtime to meet the issue. As a result of our unbusiness-like food selection, we at the same time starve the Pancreas by not providing the organic salts needed to keep it in full operation.

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An alarming increase of Diabetes is the result of this poor business procedure.

To reduce carbon saturation within the body, do not use foods rich in carbon, but select your entire diet list from foods rich in iodine, potassium, sodium, iron, calcium, and silicon (see separate list). Keep the calories below the 2,000 mark. Get out into the open as much as possible and do some really hard physical work. Stay at it long enough to get results.

Food In Which Carbon Is Found:

All foods contain carbon. Many of them are very low in other elements, but high in this particular one. These are listed here as carbon foods. They provide little else for the body:

Potatoes	Arrowroot
Polished Rice	Wafers
White Flour	Honey
Graham Flour	Cream Soups
Waffles	Spaghetti
Pies	Cookies
Doughnuts	Candy
Crackers	Macaroni
Molasses	Raisins

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Beans (Navy)
Hot Cakes
Puffs
Gems
Butter
Cake

Corn Bread
Malted Milk
Figs
Syrup
Chile

For the convenience of the student, the following tables are presented. The figures are taken from a most reliable source, and you will find this list a fairly accurate guide in the matter of selecting the calory requirements. Only the most common foods are listed, and the amount specified is set forth in terms of common usage:

Key to Measures—

Tsp.—Teaspoon— $\frac{1}{2}$ Oz.
Dsp.—Dessert spoon— $\frac{1}{2}$ Oz.
Tbsp.—Tablespoon— $\frac{1}{2}$ Oz.
H. Tbsp.—Heaping table-
spoon—1 Oz.

T. Cup—Tea cup—8 Oz.
Glass—8 Oz.
A. H.—Average helping, 3 to
4 Oz.

*Low

**Medium

***High

****Very high

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CALORY VALUE AND REACTION

BREADSTUFFS	Amount	Calories	Acid	Alkaline
Corn Bread	1 slice	100	***	
Crackers				
Plain (Soda)	1 only	25	***	
Oatmeal	1	42	***	
Graham	1	42	***	
Cookies (plain)	1	50	****	
Cake (plain)	Av. slice	200	****	
Crackers (Oyster)	1	7	***	
Buns	1	150	***	
Biscuits (baking powder)	1	150	***	
Doughnuts	1	160	****	
Gluten Bread	1 slice	100	***	
Graham Bread	1 slice	100	***	
Lady Fingers	1	84	****	
Macaroon	1	50	****	
Muffins	1	125	***	
Macaroni	2 H. tbsp.	90	***	
Macaroni and cheese	2 H. tbsp.	445	***	
Macaroni Tomato Sauce	2 H. tbsp.	150	***	
Rye Bread	1 slice	100	***	
Rolls (white)	1	110	***	
Spaghetti	2 H. tbsp.	90	***	
Toast (creamed)	2 slices	375	****	
White Bread	1 slice	95	***	
Whole Wheat	1 slice	95	**	
Waffle	1	225	***	
Zweibach	1	65	**	
Brown Bread	1 slice	100	***	

See first note on page 96.

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CALORY VALUE AND REACTION

MEATS	Amount	Calories	Acid	Alkaline
Beef steak (round)	3½ Oz.	187		
Beef steak (tenderloin)	3 Oz.	300	***	
Bacon (crisp)	1 slice	25	**	
Bacon	1 Oz.	200	***	
Chicken	3 Oz.	180	***	
Duck	3½ Oz.	285	***	
Frankfurters	1 only	100	***	
Fat	2 Oz.	100	***	
Goose (fat)	3 Oz.	357	***	
Grouse	3 Oz.	200	***	
Gravies	3 tbsp.	100	**	
Ham (boiled)	1½ Oz.	100	***	
Ham (fried)	¾ Oz.	100	***	
Mutton chop	1 only	200	**	
Pork	3 Oz.	225	***	
Pheasant	3 Oz.	200	***	
Pork chop	1-1¼ Oz.	186	***	
Quail	3 Oz.	200	***	
Squab	3½ Oz.	285	***	
Sausage (country)	1 link	155	***	
Sausage (crisp)	1 link	60	**	
Turkey	3½ Oz.	285	***	
Veal	3 Oz.	150	***	

See second note on page 96.

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NOTE

Generally speaking, the calory content of breadstuffs is not increased if whole grain flour is used.

The acid reaction of breadstuffs is lowered if whole grain is used.

All breadstuffs should be thoroughly masticated before swallowing.

When possible, cured honey should be used in making bread and cakes.

White flour products provide heat units, or fuel value. They do not provide structural or functional value.

NOTE

The acid reaction of all meats is increased if the meat is fried.

MEATS ARE BEST IF BROILED, STEAMED OR ROASTED IN THEIR OWN NATURAL JUICES.

The various parts of the animal used as food, such as the heart, liver, kidney and sweetbreads, are also acid in reaction.

Liver (calves) has been found a valuable agent in increasing the blood salts. Should be seared on either side and served without much cooking. Be sure that the liver is healthy and solid. Soft, light colored liver should never be used.

Do not use an oven for broiling purposes. Get a good griddle and broil on top of the stove. Meats are better if they are roasted on top of the stove, rather than in the oven.

The calory value of beef may vary from 650 to 2,590 calories per pound.

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CALORY VALUE AND REACTION

DAIRY PRODUCTS	Amount	Calories	Acid	Alkaline
Butter	1 Oz.	211		**
Buttermilk	1 glass	82		**
Cheese				
Cottage	3 Oz.	100		*
Swiss	1 cu. inch	90		*
American	1 cu. inch	90		*
Rocquefort	1 cu. inch	90		*
Cream (Oregon)	1 cu. inch	82		*
Limburger	1 cu. inch	82		*
Full cream	1 Oz.	118		*
Cream	1 tbsp.	54		**
Cream (whipping)	1 tbsp.	100		*
Egg (entire)	1 whole	80		
(yolk only)	1 whole	68		**
Milk (whole)	1 glass	157		**
Milk (skim)	1 glass	82		**
Milk (condensed, sweet- ened)	1 tbsp.	87	*	
Milk (condensed, un- sweetened)	1 tbsp.	34		**
Whey	1 tbsp.	54		**
Malted Milk (dry)	1 H. tbsp.	100	***	
Kumess	1 glass	130		

NOTE

Cheese, like nuts, should be served with green vegetables or sub-acid fruit.

Cheese dressings are more healthful if made with lemon juice instead of vinegar.

Milk is best used alone, rather than as part of the meal.

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Milk should be thoroughly masticated before swallowing. The mouth solutions are necessary to its perfect digestion.

Half and Half (half milk and half water) very often proves valuable where straight milk cannot be used. Always use HOT water.

If milk curdles too tight in the stomach and is difficult to digest, try drinking it with a little carbonated water.

Malted milk should be served with carbonated water when possible. Try your favorite malted milk this way; simply ask your soda man to add a little carbonated water from the pressure faucet before taking the mixture from the shaker.

CALORY VALUE AND REACTION

FRUITS	Amount	Calories	Acid	Alkaline
Apples (sweet)	1 med. size	72		***
Banana	1 med. size	127	*	
Blackberries	4 H. tbsp.	62		***
Currants	4 H. tbsp.	55		***
Cherries	1 Oz.	18		***
Cantaloupe	1 med. size	180		***
Grapefruit	1 med. size	254		****
Grapes	4 H. tbsp.	55		***
Huckleberries	4 H. tbsp.	62		***
Lemons	1 med. size	35		****
Peach	1 med. size	42		***
Pear	1 med. size	90		***
Plum	1 large	30		***
Pineapple	2 slices	100		***
Orange	1 med. size	75		****
Raspberries	4 H. tbsp.	55		***
Strawberries	4 H. tbsp.	40		***
Watermelon	1 long slice	20		**
Dates (dried)	1 large	25		*
Figs	1 large	65		*
Prunes	1 large	35	*	

See first note on page 100.

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CALORY VALUE AND REACTION

VEGETABLES	Amount	Calories	Acid	Alkaline
Artichoke	Med. size	97		*
Asparagus	8 stalks	25		*
Beans (Navy, baked)	3 H. tbsp.	295	***	
Beans (string)	2 H. tbsp.	15		**
Beans (dry Lima, boiled)	3 H. tbsp.	130	**	
Beets	2 H. tbsp.	30		**
Beet Greens	2 H. tbsp.	60		**
Carrots	3 H. tbsp.	20		**
Cabbage	2 H. tbsp.	10		*
Cauliflower	2 H. tbsp.	7		*
Celery	3 H. tbsp.	99		***
Corn (green ear, med.)	3½ Oz.	100		*
Corn (canned)	2 H. tbsp.	100		*
Cucumbers	8 slices	9		*
Dandelion Greens	2 H. tbsp.	60		**
Hominy	2 H. tbsp.	85	*	
Mushrooms	1 large	10	*	
Onions	4 Oz.	50		*
Peas (green)	3 H. tbsp.	110		*
Potatoes (mashed)	A. H.	140	**	
Potatoes (boiled)	A. H.	140	**	
Potatoes (baked)	A. H.	140		*
Potatoes (sweet)	A. H.	204	**	
Potato Chips	1 Oz.	100	**	
Radishes	6 med. size	15		*
Squash	2 H. tbsp.	30	*	
Spinach	2 H. tbsp.	30		***
Tomatoes (fresh)	1 med. size	45		***
Turnips	2 H. tbsp.	25		*
Beans (baked, canned)	3 H. tbsp.	150	***	
Lettuce	A. H.	5-10		****
Parsnips	A. H.	25	*	

See second note on page 100.

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NOTE

To preserve highest alkaline content, serve fruits raw.

If sugar is added to fruits when cooked or served raw the alkaline content is reduced and the acid increased.

Sugar added to fruit, either cooked or raw, increases the calory content 95 calories for each tablespoon.

All fruits should be thoroughly ripened before using.

Cooked fruits are very often more readily digested if they are prepared in their own juice without the addition of sugar. Fruits should never be boiled or steamed in water.

NOTE

Raw vegetables are relatively high in alkaline values.

To retain the alkaline properties of cooked vegetables, prepare them in their own moisture and serve without butter or seasoned dressings.

Cabbage and Cauliflower are rich in sulphur and should be served raw. If cooked they should never be prepared with water and salt, but slowly "ripened" in their own moisture until they "bite" tenderly crisp. These foods are ruined if overcooked.

Raw Cauliflower makes a delightful addition to any vegetable salad—select fresh crisp Cauliflower, using three or four stalks, grate fine and sprinkle through salad.

Shredded cabbage should be a part of practically every vegetable salad where Cauliflower is not used.

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CALORY VALUE AND REACTION

FISH	Amount	Calories	Acid	Alkaline
Blue fish	3½ Oz.	135	**	
Cod	4 Oz.	100	**	
Crab	4 Oz.	100	**	
Clams	4 Oz.	45	**	
Halibut	3½ Oz.	135	**	
Lobster	4 Oz.	100	**	
Mackerel	3½ Oz.	135	**	
Oysters	1 med. size	8	**	
Oysters (small)	6	20	**	
Oysters (scaloped)	6	198	***	
Oysters (creamed on toast)	6	307	***	
Smelts	1 Oz.	16	**	
Sardines	1 Oz.	16	**	
Smoked fish	4 Oz.	250	**	
Sole	3 Oz.	60	**	
Salmon	3½ Oz.	198	**	
Trout	3 Oz.	60	**	

NOTE

All fish should be absolutely fresh when ready for preparation.

The acid reaction of all fish is increased if fried in grease. Fish, if used, should be broiled, baked or steamed.

Shell fish, if absolutely fresh, can be eaten raw. Most shell fish contain Iodine.

Fish roe contains Iodine.

The mineral value of shell fish is proportionately higher than that of other fish.

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CALORY VALUE AND REACTION

PUDDINGS AND DESSERTS	Amount	Calories	Acid	Alkaline
Ice Cream	2 H. tbsp.	205	**	
Pies				
Custard	$\frac{1}{8}$ pie	225	****	
Apple	$\frac{1}{8}$ pie	340	****	
Lemon	$\frac{1}{8}$ pie	255	****	
Squash	$\frac{1}{8}$ pie	255	****	
Pumpkin	$\frac{1}{8}$ pie	255	****	
Mince	$\frac{1}{8}$ pie	340	****	
Berry	$\frac{1}{8}$ pie	240	****	
Cream	$\frac{1}{8}$ pie	420	****	
Chocolate	$\frac{1}{8}$ pie	420	****	
Puddings				
Custard	1 cup	300	**	
Chocolate	2 H. tbsp.	205	***	
Bread	2 H. tbsp.	205	***	
Blanc Mange	2 H. tbsp.	75	**	
Snow	2 H. tbsp.	75	**	
Rice	2 H. tbsp.	175	***	
Sago	2 H. tbsp.	175	***	
Tapioca	2 H. tbsp.	175	***	

NOTE

Sweet fruits, such as prunes, black figs, white figs, dates, etc., provide natural sugars, and should be used more extensively as desserts.

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CALORY VALUE AND REACTION

SOUPS	Amount	Calories	Acid	Alkaline
Asparagus (cream)	1 cup	235	**	
Bean	1 cup	140	*	
Celery (cream)	1 cup	235	**	
Celery (clear)	1 cup	26	*	
Celery (essence)	1 cup	20		***
Chicken	1 cup	140	*	
Corn (cream)	1 cup	275	**	
Chowder (clam)	1 cup	100	**	
Consomme	1 cup	26	**	
Green Turtle	1 cup	140	**	
Mock Turtle	1 cup	100	**	
Oxtail	1 cup	100	**	
Potato (cream)	1 cup	275	**	
Tomato (cream)	1 cup	235	**	
Tomato (clear)	1 cup	26	*	
Vegetable Bouillon	1 cup	26	*	

NOTE

It is assumed that the above soups and broths are prepared in the average way, using a fish or meat stock. If the broth is prepared solely from vegetables the reaction will be alkaline, and the calory value lower.

The reaction of the soup or broth will be less acid if the stock is made from marrow bone and joint ligament instead of muscle.

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CALORY VALUE AND REACTION

CEREALS	Amount	Calories	Acid	Alkaline
Cream of Wheat	2 tbsp.	65	***	
Corn Flakes	3 tbsp.	55	***	
Gruel (arrowroot)	3 tbsp.	210	***	
Gruel (oatmeal)	3 tbsp.	210	***	
Gruel (barley)	4 tbsp.	110	***	
Gruel (cornmeal)	4 tbsp.	110	***	
Grape Nuts	5 tbsp.	250	***	
H. O.	2 tbsp.	70	**	
Indian Meal	2 tbsp.	70	**	
Puffed Rice	5 tbsp.	55	***	
Pop Corn	1½ cups	100	**	
Rice (white)	½ cup	100	**	
Shredded Wheat	One	100	*	
Triscuit	One	50	**	
Wheat Flakes	2 tbsp.	70	**	
Griddle Cakes	3 only	300	***	
Waffle	1 only	225	***	

NOTE

The calory content of all cereals is increased if served with cream and sugar.

The acid content is always increased when cream and sugar are used.

Cereals are more wholesome if served with cured honey, should sweetening be desired.

All cereals should be thoroughly masticated before permitted to enter the stomach.

If sugar is used with cereals add 95 calories for each level tablespoon used.

If cream is served with cereals add 54 calories for every tablespoon used.

If whole milk is served with cereals add 10 calories for each tablespoon used.

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CALORY VALUE AND REACTION

NUTS	Amount	Calories	Acid	Alkaline
Almonds	10	100		**
Brazil	1 large	47		**
Chestnuts	1 average	5		**
Peanuts	5 large	50		*
Pecans	1 large	20		**
Walnuts	2 large	50		**
Peanut Butter	2 tbsp.	85	*	

NOTE

Nuts may be used to replace meats.

Nuts should not be eaten alone, but should be grated and used with vegetable or fruit salad.

Nuts, in general, possess laxative properties.

Nuts are natural protein foods—abundantly supplied with mineral salts.

Peanuts really belong in vegetable list.

CALORY VALUE AND REACTION

BEVERAGES	Amount	Calories	Acid	Alkaline
Beer	1 glass	136	**	
Brandy	1 cordial glass	62	**	
Cocoa	1 cup	269	***	
Coffee	1 cup	156	***	
Egg Nog	1 glass	294	***	
Lemonade	1 glass	250		*
Wine	1 glass	90	**	
Wine (sweet)	1 glass	45	**	
Whiskey	1 glass	62	**	
Tea	1 cup	156	**	

See first note on page 106.

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NOTE

The use of stimulating beverages cannot be justified either in the light of physiology or common sense. They are wholly unnatural, and as foods, surely represent a class that can be left out of most diets to very good advantage.

CALORY VALUE AND REACTION

SWEETS	Amount	Calories	Acid	Alkaline
Chocolate	1 Oz.	180	***	
Chocolate Creams	1 med. size	100	****	
Honey	1 tbsp.	95	***	
Maple Syrup	1 tbsp.	95	***	
Sugar (cube)	One	26	****	
Sugar (granulated)	1 tbsp.	95	****	

NOTE

Natural sweets are more wholesome than unnatural sweets.

Maple sugars or whole cane sugars are more wholesome than highly refined white sugars.

Children should be provided with sweet fruits, such as dates and figs, rather than candies or other unnatural sweets.

The greater the acid saturation of the body, the greater is the desire for sweets.

Honey provides a wholesome natural sweet, if properly "ripened." The ripening process begins in the honey sac of the bee and is completed after the honey is sealed in the comb.

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CALORY VALUE AND REACTION

SAUCES AND CONDIMENTS	Amount	Calories	Acid	Alkaline
Cream sauce	5 tbsp.	91	*	
Mayonnaise with oil	1 tbsp.	180	*	
Mayonnaise without oil	1 tbsp.	170	*	
Olive oil	1 tbsp.	121	*	
Olives	1 only	20		*

NOTE

Only such sauces as provide fuel value have been considered here. Hot sauces and condiments as a class have little or nothing to offer by way of structural, functional or fuel value.

Condiments are unnecessary if food has been properly prepared. Good business demands natural flavors, not artificial seasonings, and it is respectfully suggested that much can be done to provide more healthful living if we will educate ourselves to appreciate the natural flavors of foods.

When foods are prepared so that they are "tasteless" you may depend upon it that they have likewise been devitalized and their valuable properties lost.

PART TWO

Chemical Inventory

Chapter 4

Oxygen, The Agent of Life

Perhaps no other element, so far discovered, plays such an important part in life as oxygen. It is a very associative element, and seems to possess the peculiar property of setting other elements to work.

When oxygen enters, life begins.

Before the age of chemistry, it was a very easy matter to prove that substance could be destroyed; after the age of chemistry, the opposite was just as easily proven. All matter is indestructible. It simply changes form as the units of its construction are interchanged. Gases are changed to solids, solids to gases, and ether to liquids, or the reverse. All creation is composed of a very few basic elements. As the basic elements are united in different quantities, the object is changed in appearance. Oxygen is largely responsible for this constant redis-

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tribution of matter, which, after all, is creation.

Oxygen is a colorless, odorless, tasteless gas. It is restless, aggressive, always on the move, and unites readily with all other elements save fluorin, with which it will not unite. So abundant is oxygen and so widely distributed, that it forms about one-half of the crust of the earth. It enters into all forms of life as an activating principle, as well as a part of the structure.

How Oxygen Works in the Body:

Chemists have isolated from eighty to ninety pounds of oxygen in the body after death. It is constantly at work, from birth to death. The tissues of the body contain oxygen in combination with other elements, and in its free state it drifts through and between the cells of the body, persistently and silently going about its work of purification and action. Oxygen enlivens the mind and sustains vitality. Tired, listless, devitalized people all starve for oxygen. When it is present in the body in sufficient quantity, the personality is dynamic, active, aggressive; submerged personality never characterizes the individual when sufficient oxygen is at work

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in the tissues. Oxygen, coming in contact with carbon, compels it to give up its heat to the tissues. Without oxygen, carbon would remain inert, ultimately resulting in death. The air we breathe is said to be about twenty per cent oxygen. A sufficient amount is available for every living thing, under ordinary circumstances.

It is not the actual shortage of the element itself that is responsible for the lack of it in the tissues of the individual, the fault lies primarily with the blood stream. You have approximately four quarts of blood in your body, and this amount is sent to your lungs twice every minute of your life to be oxidized. Air is taken into the lungs from eighteen to twenty-two times per minute for the express purpose of oxidization. It is the business of the red blood corpuscles to attract oxygen through the capillary walls in the lungs, and carry it to every cell and tissue of the body. Deep breathing, always a good habit in and of itself, only partly solves the problem. The other half of the problem is concerned with the quality and quantity of red corpuscles found in the blood stream.

You are not oxidized when you are listless,

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tired, and devitalized. You are oxygen deficient when you are lazy and lacking in ambition; when you are pale and anemic. Auto-intoxication is the result of oxygen starvation, combined with the too frequent use of acid producing foods. Tubercular symptoms, as well as high acid conditions, can be directly traced to oxygen starvation. When sex powers are lagging and indifferent, oxygen is deficient.

To increase oxygen in the body, avoid all foods rich in nitrogen (see nitrogen list). Do not eat foods as listed high in fluorin, but select the diet from foods rich in iron, potassium, and iodine. Occasionally an individual is found, who is too highly oxidized. This condition is readily recognized by the chronically flushed face, red neck, dull brick-colored ears, hot burning skin, overheated blood, frequent bleeding from the nose, and heavy and slow kidney action. To correct this condition, live largely on watery foods, drink a great deal of water and avoid foods rich in iron and potassium.

PART TWO

Chemical Inventory

Chapter 5

Nitrogen

Nitrogen is a gas without taste, odor, or color. About four-fifths of the atmosphere (per volume) is nitrogen. It is also widely distributed in the animal, plant, and mineral kingdoms. In many respects it is the opposite of oxygen. It does not support combustion, and will not unite very readily with other elements. It retards the activity of oxygen, preventing it from burning and tearing down. It is a strong, independent element. If it were not for the presence of nitrogen in the atmosphere which surrounds us, there would be very great danger of spontaneous combustion, for it is nitrogen which prevents oxygen from bringing such a condition into existence.

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Nitrogen in the Human Body:

After death the body yields about two ounces of nitrogen. It is the first element to leave after death, and decomposition sets in just as soon as the nitrogen leaves. As in the case of other elements, it is difficult to determine just how much nitrogen is needed for structural and functional purposes during life. It is held very loosely in the body, and leaves rapidly. It acts as a tissue builder, and is particularly associated with muscle. One-fifth of the formation is nitrogen. With this in mind, it is readily understood why protein foods are called nitrogen foods.

In addition to its presence here, it is found in the blood, in the fibrous tissues of the body, and in the hair. It possesses the faculty of absorbing color from plant life, and causing the body to assimilate it. When the hair, eyes, and skin are dark, nitrogen is active. When the hair is blond, the skin and eyes light in color, sulphur is active.

Nitrogen and Proteins:

Protein foods are nitrogenous in character.

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We mean that nitrogen is active in the formation of all protein substances. For the past hundred years, science has stressed the importance of protein as an essential factor in muscle building. Continued stressing of this conception is perhaps a contributing factor to the too frequent use of high protein foods. In some instances, in fact in many, such teaching has proven destructive. It is true that we need a reasonable amount of protein in the diet, but generally speaking, we need much less than we get. Thyroid deficiency, kidney trouble, and poor circulation are the direct result of protein saturation. Too many nitrogen foods and not enough iodine foods will cause goiter, clog the kidneys, fill the blood stream with urates, and encourage auto-intoxication. Much vital energy is lost as the result of protein excess. The body does not store up nitrogen and when nitrogenous foods are used to excess, the kidneys, liver, and other organs of elimination are driven at high speed to rid the system of that excess. More effort is needed to digest proteins than is required to digest carbons.

In the past it has been assumed that the daily

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protein requirement approximated four ounces. Recent experiments indicate that better health and increased working capacity result, when the amount is cut in half. A good general rule to follow is to provide a reasonable amount of protein foods, and at the same time to provide plenty of foods of a functional character. These foods are discussed at another point in our book.

Protein foods are being used to excess when the disposition is gloomy, easily affected by depressing weather and when the mind is dull and suspicious. Excess protein clogs the kidneys, congests the liver, and provides for any number of distressing diseased conditions. Elimination is always slow and faulty under protein excess. Thyroxine is exhausted and the thyroid gland driven to extreme in its effort to meet the issue; hands and feet are cold, and circulation is poor.

Nitrogen saturation can be corrected if the diet is composed largely of foods rich in raw sulphur, potassium, sodium, iodine, and iron. A list of nitrogen foods follow:

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Key to Chart: *Fair **Good ***Excellent R. Raw C. Cooked

Food	Value Nitrogen	"A" Vitamin R. C.		F "B" G Vitamin R. C.		"C" Vitamin R. C.		Fuel Value
Beans	**			**	**			***
Cheese	**		***					***
Eggs	**		**	**				**
Lentils	***		*	**				**
Mackerel	**		* *	* *				**
Meats:								
Flank steak	***		*		*			**
Chuck steak	***		*		*			**
Dried beef	***							**
Roast beef	***		*		*			**
Pork	**		*		**			*
Mutton	**		*		*			*
Nuts:								
Peanuts	***		*	**				**
Pignolia	***							**
Walnuts	**		*	**				*
Almonds	***		*	**				**
Butternuts	***		*	**				**
Brazil nuts	***		*	**				**
Peas (fresh) green	***		* **	** **	*** **			**
Peas (dried)	***		*	**				**

PART TWO

Chemical Inventory

Chapter 6

Calcium, The Bone Building Element

Calcium is a yellow-white metal. It is soft, and can be rolled into thin sheets, or hammered into thin leaves. It is widely distributed by Nature and found practically in all soil. It is present in marble, limestone, and chalk. Ordinary lime, slack lime, and quicklime are all combinations of calcium. It is very difficult to isolate calcium from other elements with which it readily unites. It has a strong affinity for oxygen, carbon, silicon, and sulphur. It is highly alkaline in its reaction and is a great neutralizer of toxin.

Calcium and the Human Body

Before calcium enters the human tissues as

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an actual part of its structure, it has been highly refined. Chemists have isolated between four and five pounds in the body after death, but just how much was used by the body during life is impossible to say. Calcium not only enters into the actual structure of several body tissues, but it is used in a functional way. Calcium is found in the blood stream as one of the most vital and necessary blood salts. Its function here seems to be related to alkalinity and, as well, it works with potassium to bring about the coagulation of the blood. It is found in bone; also, in the outer covering of the skin and in the walls of the arteries.

When found in bone, it is in combination with phosphorus, silicon, manganese, fluorine, and other hardening materials. As an agent, calcium assists in maintaining the body in an acid free state. It sweetens the tissues, it stabilizes the cell structure, and renders it more resisting to disease. It adds determination and stability to the disposition, and lengthens the life of every cell. Individuals in whom calcium is found in good quantity are long lived, stable, dependable, and sometimes stubborn. They al-

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ways have wonderful bones, which is a very desirable characteristic in the makeup of any individual.

It is a mistake to saturate the body with foods which break down calcium. Sugar is said to be calcium's worst enemy. A sugar saturated solution will exhaust about forty times as much calcium as a solution which does not contain it. Children and adults who live largely on sweets exhaust the calcium and it is not available for bone and teeth building. Teeth do not decay because we expose them to sugar in the mouth; the breakdown process is more deeply seated. Calcium starvation is assuming proportions in America which indicate the possibility of real trouble, if steps are not taken to correct it.

A calcium diet is indicated in all cases of expectant motherhood. The keen edge of living is too often blunted by the vision of a youthful mate aged and weakened by childbirth, which is a natural process. Calcium starvation during pregnancy contributes to these conditions. To protect mothers against calcium breakdown, it is suggested that the expectant mother pay particular attention to the calcium foods, both be-

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fore parturation, and during the nursing period. During this time a calcium diet is imperative.

Indications of calcium starvation may be listed as follows: the body is acid, and the stomach is sour, the skin is covered with pimples, and certain forms of eczema appear, the body odor is sour, and the breath is foul—nights sweats are common—tubercular tendencies appear—the bones are frail, and fracture readily.

To increase calcium in the body, see that each day's diet contains three foods selected from the calcium list. At the same time it is well to increase the iodine diet, by selecting from the iodine list at least one food of iodine character.

All children need a great deal of calcium.

In adults where there is a tendency to hardening of the ligaments, or of the walls of the blood vessels, it is advisable to reduce calcium in the diet.

Cows' Milk and Its Use:

Milk is said to be the "king" of calcium foods, and it is true that it contains a great amount of calcium. It is perfectly natural that it should,

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because it has been primarily designed as a food for calves, and if a calf is to assume its usual characteristics, it must grow a set of hoofs, a heavy, tough hide, a big frame, and a pair of horns, all of which require a great amount of calcium. If cows' milk did not contain calcium, the calf would run short of some of its usual characteristics. As a food for calves, there is nothing better in the world than cows' milk. It is very often a good food for many people, but it is not a good food for everybody.

Milk contaminates very readily, supports germ life, and unless properly cared for, may give rise to a great deal of possible disease. Milk is always loaded with bacteria, and a loose rivet on a milk can will multiply the bacteria count by the thousands in ten minutes time.

It is not our purpose to discourage the use of milk as a food, but it is well to keep in mind the possibilities of ready contamination. Most milk is pasteurized, by which process many of the contingencies associated with its use are eliminated. Raw milk, however, is a better food than pasteurized milk, provided of course, that it is properly and hygienically handled.

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Milk should be thoroughly mixed with the juices of the mouth before it is allowed to enter the stomach. It is, therefore, better to suck the milk through a straw, or chew it before swallowing. When milk enters the stomach it is soured and curdled. For this purpose a special enzyme, or agent, is provided.

If this agent is too active, the milk is curdled into a dense mass, and leaves the stomach with great difficulty. If it is not supplied in sufficient quantity, the milk is not properly prepared for further assimilation, and will enter the small intestine unsuited to the medium provided there for intestinal digestion. It has been found, in some instances, that one glass of milk will fail to digest, giving rise to distress, and must be thrown from the stomach. The same individual can drink a quart of milk at one time without any trouble or distress. This experience is assumed to indicate that rennet, or the agent of milk digestion, is present in excess.

MILK SHOULD NOT BE USED AS A BEVERAGE AT MEAL TIME. If milk agrees with you, digests readily, and proves to be a valuable food for you, it should be taken

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into the stomach when the stomach is empty. If this general principle is followed, together with the suggestion that the milk be thoroughly mixed with the saliva in the mouth, very little trouble will be encountered in its use.

A diet composed entirely of milk has proven beneficial in the correction of many diseases. It, however, is not good business to go on a diet of milk, only, unless so advised by your physician and his services are available to provide against any adverse effect which may be associated with the diet. It is true that many people, for corrective purposes, have found great benefit through a milk diet, while the second time they have attempted the procedure, it has produced an opposite result.

Generally speaking, goats' milk is better for general use than cows' milk. Especially is goats' milk suggested, as possessing great advantage over cows' milk, in the event of chlorin hunger, or a tendency to tubercular breakdown. The balance in goats' milk between phosphorus and calcium, as indicated by chemical analysis, is much nearer human needs than the balance between these two elements as shown in cows'

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milk. Goats are hardy animals. They seldom suffer from disease which too frequently characterizes dairy herds. The fat particles found in goats' milk are much finer than those found in cows' milk, and for this reason are more readily assimilated by the body under ordinary circumstances.

Another feature of importance is the chlorin content of goats' milk. The presence of this element in the milk insures it against bacterial activity. It also provides against souring and contamination. Every family should use at least one quart of goats' milk per day, especially if there are growing children in the home.

Mares' milk is often used to good advantage, where difficulty is found in providing a proper milk for bottle fed babies.

Whether cows' milk or goats' milk is provided in the regular diet, careful precaution should be taken to provide against bacterial saturation. Milk should never be left on the back porch in the sun. Immediately upon delivery, it should be placed in the cooler and kept at a low temperature.

Be sure that the mouth of the container is
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cleansed before the milk is poured from the bottle.

Do not place milk near cabbage—especially cooked cabbage—or other food stuffs, while the bottle is uncapped. Milk readily absorbs the flavors thrown from other food stuffs, and soon becomes unfit for use.

The milk problem from a dietetic standpoint is an individual one, and no general rules can be given that will apply successfully to everybody. Be sure that the milk you use meets the standards prescribed by the city in which you live. Be sure that it is clean when you get it, and is kept clean after you get it. If used as a beverage, make a meal of it, chew it thoroughly, or suck it through a straw. If it agrees with you it is probably a good food for you. If it does not agree with you, then you may provide against calcium starvation by selecting from the calcium list given in this book, any number of other foods which show a high percentage of this element. Many people more readily assimilate vegetable calcium than they do animal calcium.

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Key to Chart: *Fair **Good ***Excellent R. Raw C. Cooked

Food	Value Calcium	"A" Vitamin		F "B" G Vitamin		"C" Vitamin		Fuel Value
Citron	***							*
Cheese (cottage)	**		*					**
Cheese (cream)	**		***					***
Cheese (from mare's milk)	***							**
Cabbage (savoy)	**	*	*	**	**			*
Halibut	***		*		*			*
Kumiss	***							*
Lemons	**	*		**		***		*
Limes	**					**		*
Onions	*	*	*	*	*	**	*	*
Oranges	**	**		**		***		*
Rhubarb	***					*		
Spinach	*	***	***	**	*	***	**	*
Sorrell	**							
Sauer kraut	**	*		*		**		*
Water cress	***	***				***		*
Milk (cow's)	**	***	***	**	**	*	*	**

PART TWO

Chemical Inventory

Chapter 7

Iodine

Iodine is a non-metallic substance with a high metallic luster. It is blue-black in color. When vaporizing, it gives off an odor much like chlorine, and fuses at 225° F. It is slightly soluble in water but is readily soluble in alcohol and ether. A starch test is a very simple way of determining the presence of iodine in any substance. If the presence of iodine is suspected, it can be readily detected by contacting it with a little starch. The starch will turn purple if the iodine is present.

Iodine is rather widely distributed over the earth, abundantly found in sea water, sea weed, kelp, many mineral springs, marine plants, most shell fish, cod liver oil, many land plants, and some vegetables and fruits. There are some areas in the United States which seem to be al-

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most deficient in iodine, but, generally speaking, its distribution is quite thorough.

Iodine was discovered in the human body in the year 1890. It apparently does not enter into the structure of the body, becoming an actual part of it; but rather acts in the body in a functional capacity, the iodine center being the thyroid gland.

In the year 1918 Doctor Kendall succeeded in isolating thyroxine, by which name the secretion of the thyroid gland is known. Chemical analysis proved thyroxine approximately sixty-five per cent organic iodine. There is perhaps no other substance at work within the body, the effect of which is so far reaching as iodine. It is the active principle in thyroid health and life.

The thyroid functions normally only when sufficient iodine is available. No organ can remain healthy unless it is permitted a full scope of activity. Diseased thyroid in many cases, if not all, can be directly traced to iodine hunger. Goiter is most prevalent in the Great Lake Region of America, but, of course, is not limited to that particular area. Reports from practically every state in the Union indicate that an alarm-

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ing condition actually exists. "In the Great Lakes District, especially bordering on Lake Superior, one city showed that 54% of the entire school population was affected. In a neighboring city 67% of all pupils in a large high school, and 90% of all girls in the normal college, showed some enlargement of the thyroid gland." "In the Lake Erie District, one city showed 64% of all girls attending school had goiter." In the Northwest section of the United States, reports indicate that in the city of Seattle 65% of the boys and 75% of the girls between the ages of twelve and eighteen years had some disturbance of the thyroid gland. United States Public Health Service indicates that iodine starvation is a very serious problem in parts of Connecticut, Colorado, California, Illinois, Indiana, Kentucky, Idaho, Kansas, Louisiana, Montana, New York, Pennsylvania, Utah, Virginia, Washington, and Wyoming. From the foregoing, it is readily seen that iodine starvation is a national problem.

Iodine functions in the body not only as an agent of thyroid activity, but it has a direct affect in many other ways. Without iodine the

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body would never reach maturity. It functions directly here in conjunction with the development of the sex apparatus. "It is responsible for the lunar cycle in the female and the reproductive mechanism in the male." Without the required amount of iodine, the essential elements concerned with mental development are not absorbed. The mind fails to reach maturity. Its expression is practically inhibited. Phosphorous and iodine are so closely related in mental health that it is little wonder they are found combined in many foods.

Iodine further assists the body to a state of efficiency by counteracting the effect of poisons resulting from too frequent use of meats and other high nitrogen foods. It has been demonstrated that thyroxen acts on these poisons, rendering them harmless to the blood and brain tissue.

Iodine starvation is not solely the result of iodine deficiency in the food. Our living habits are a decided contributing factor. One of the quickest ways to exhaust the thyroid is to live largely on protein foods. All meat eaters require an abundance of iodine, and the greater the pro-

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tein diet the greater the possibility of iodine exhaustion.

Iodine has a direct affect upon the function of the parathyroid glands, and it is most likely the element concerned with the capture and metabolism of calcium. Iodine starvation means parathyroid inactivity, which is reflected in poor bone structure and poorly developed teeth and it is in no sense a small factor in predisposing the individual to tubercular breakdown.

Iodine is needed when glandular activity is sluggish, when the brain is dull, when the throat feels congested, when the thyroid enlarges and is soft and vascular to the touch, when the body fails to pick up calcium, silicon, and chlorine, when maturity is retarded and sex life is low, and when the teeth do not form properly.

Iodine is a valuable agent in the preservation and correction of overweight or obesity. All mental workers need iodine. Very few people get too much iodine; and in districts where iodine is plentiful and people live largely on vegetables and sea food rich in iodine, goiter is unknown. But occasionally we do find in these districts an evidence of iodine saturation. This

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condition is characterized by greater activity, as associated with the thyroid and parathyroid glands.

Key to Chart: *Fair **Good ***Excellent R. Raw C. Cooked

Food	Value Iodine		"A" Vitamin		F "B" G Vitamin		"C" Vitamin		Fuel Value
			R.	C.	R.	C.	R.	C.	
Artichokes	*		**		*				
Abalone	**								
Carrots	*		***		**	**	*	*	*
Cod Liver Oil	**		***						*
Clams	*		*		*				
Craw-fish	*								
Frog legs	*								
Fish roe	*			**		**			*
Garlic	*								
Grapes (green)	*		*		**		*		*
Irish Moss	**								
Kelp	**								
Muscles	*								
Mushrooms (black)	**		*						*
Pears (Bartlett)	*				**		*		*
Pineapple	*		**		**		**		*
Salmon(smoked)	*								*
Scallops	*								
Sage (gray)	**								
Sea weed	**								
Soup (green turtle)	**								

PART TWO

Chemical Inventory

Chapter 8

Phosphorus

Phosphorus is a non-metallic element, much like ordinary wax in appearance. It is highly poisonous. It melts when exposed to heat higher than 108° to 111° . It is inflammable and emits a white vapor while burning. Perhaps its most outstanding characteristic is its luminosity. It glows in the dark as if lighted from within. If it is heated for a great length of time, below the boiling point, its color changes to red and its poisonous properties are lost. If heated again to 500° , it will assume its original form.

Phosphorus is widely distributed in Nature. Most forms of deep sea life carry an abundance of it. Deep sea fish, glowworms, fire flies, June bugs, and many microscopic organisms abounding in swamps, carry Phosphorus. It is found

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in soil and in many forms of plant life, and exists in the actual structure of animal life.

Where Phosphorus Is Found in the Human Body:

Chemists have isolated about two pounds of Phosphorus in the average individual after death. All organs and tissues of the body are, to a large extent, combinations of Phosphorus. It is found in every cell. About twenty-seven ounces of the total amount are found in the bones, about two and one-half ounces in the muscle, and one-quarter ounce in the brain and nerve tissue. If we compare the size and weight of the bone and muscle with that of the brain, we will readily see that this element plays a very important part in the structure of the latter. While it is needed in all parts of the body, it is imperative in the brain and nerve structure.

Phosphorus stimulates bone production. It knits calcium firmly, and combines with other hardening elements to form the smooth covering of bone. Phosphorus is essential to bone hardening. It is also found in the blood stream,

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where it exerts an indirect affect upon the manufacture of red blood cells. About 10% of the solid matter in the white blood cells is Phosphorus. Phosphorus is an active principle in all forms of life. Reproduction fails when Phosphorus is not available. The gray matter of the brain shows about 17% lecithin, which is a highly organized Phosphorus compound. This has been aptly called the "essential and indispensable medium through which the intellectual faculties manifest themselves." Without Phosphorus, there is no thought. It is not the size of the brain that determines intellectual capacity, but rather the quality of the nerve oil, or lecithin, found in the tissues of the brain. Every thought utilizes Phosphorus. After excitement, passion, or any high emotional outburst, or prolonged mental effort, the urine leaving the body will contain a great amount of Phosphorus. All highly emotional states drain Phosphorus from the tissues. Emotion of any kind drains the nerve oil from brain and nerves, and is a predisposing factor to nerve breakdown or Neurasthenia.

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Learn to Feel Less, and Think More.

Phosphorus poisoning, which manifests itself by irritability, restlessness, exaggerated mental conceptions, over-sensitiveness, erratic emotional reactions, is the direct result of Phosphorus saturation.

Phosphorus, after being used, is carried from the brain to the liver by the blood stream. Under emotional stress the capacity of the liver, to cleanse the blood of the breakdown Phosphorus, is taxed to the limit. If the blood is not cleansed, convulsions will follow, and to protect against this, Nature provides for its cleansing at the expense of other liver activity. Very often, after emotional stress, the skin appears greenish-yellow, and the eyeballs are yellow, indicating an abnormal distribution of bile through the blood stream, combined with toxic Phosphorus.

Our emotional age, our demand for thrills, and our hysterical reaction, are responsible for the spread of mental breakdown, which characterizes our civilization.

Phosphorus exhaustion is indicated by devitalization after excitement. The skin is pale,

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death-like in color, especially the forehead. There is a constant craving for cold drinks. The body is cold and clammy. Life is made up of imaginary ills. Brain fag and mental exhaustion are common. Reproductive passions are diminished and interrupted. The cell activity of the body is sluggish.

Phosphorus can be increased by selecting from the Phosphorus list, foods rich in this particular element. If you do not care for the animal Phosphorus, select your diet from the fruits, grains, and vegetables rich in this element (see list). Keep the liver active, and get plenty of fresh air and exercise. Learn to relax the mind. Mental relaxation is just as important as physical relaxation, and it is just as easy to accomplish. Phosphorus cannot be increased if our mental energy is spent in worry and extreme emotional life.

Phosphorus is occasionally found in excess, as certain types of people inherently absorb a great deal of it from their food. This condition is characterized by a skin of wax-like texture; nerves are edgy, high strung, over-keen; day dreaming is the rule, practical thought is diffi-

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cult — too imaginary and visionary. Jumpy nerves make us irritable and inclined to turn incidents into events. We are subject to too many impressions outside of our five senses. We are totally abstract and visionary in character.

Chart on page 139.

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LIST OF PHOSPHORUS FOODS

Key to Chart: *Fair **Good ***Excellent R. Raw C. Cooked

Food	Value Phosphorus	"A" Vitamin		F "B" G Vitamin		"C" Vitamin		Fuel Value
		R.	C.	R.	C.	R.	C.	
Almond nuts	***	*		**				*
Beechnuts	**			**				*
Barley (whole)	**							**
Beans	**			**	**			***
Bran	***	*		**				*
Corn	***	**		**				**
Clams	**	*		*				*
Crabs	**							*
Egg yolk	***	***		**				**
Haddock	**	*			*			*
Herring	**		*		*			*
Lentils	**	*		**				***
Lobsters	**							*
Meats (average)	***		*		*		*	***
Milk (cow's)	**	***	***	**	**	*	*	**
Milk (goat's)	**	***	***	**	**	*	*	**
Oysters	**	**		**		*		*
Oats (whole)	**	*		**				***
Pike	**		*		*			*
Rye (whole) bread	***				**			**
Rice (whole)	***	*		**				**
Smelts	***		*		*			*
Salmon	**		*		*			*
Trout	**		*		*			*
Walnuts	***	*		**				**

PART TWO

Chemical Inventory

Chapter 9

Potassium

Potassium is a high alkaline element. It is very light in weight, and will float almost as readily as a cork. It is blue-white or silver in color, and is classified as a metal. In some forms it is mined from the earth, and is found abundantly distributed throughout most soil, and in many rock formations. The ocean is said to be the greatest source of Potassium, but very little has as yet been derived from it directly. Potassium is also secured from birchwood. Other woods will yield it as well.

Commercially, Potassium is used in many ways and in many combinations. It is a rank poison when combined in certain proportions with other elements, and is rendered entirely harmless in other combinations. When united with sulphur, it is used in printing wash fabrics.

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It is used in the manufacture of soft soaps. Potassium-bicarbonate is used in soft drinks. When united with calcium, hydrogen, chlorin, and other elements, its scope of usefulness in the chemical and commercial world is very extensive.

Potassium is a very active principle in plant life. Where the soil contains plenty of potassium, plant life will mature readily, and will successfully resist the attacks of many forms of plant disease. When potassium is lacking in the soil, plants will not mature and fruits will not develop. Most plants pick up potassium very readily. Many of them pick up a great deal of it. A pound of potatoes in many instances yields about one-quarter ounce of potassium, which is deposited largely in the skin, and just under the inner layer. Dried olives carry a large amount of Potassium. When fruits and vegetables carry plenty of Potassium and Sodium, combined with tartaric acid, these foods are high in alkaline properties and valuable as natural laxatives. Potassium is a twin brother to oxygen in many respects.

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Potassium in the Human Body:

It is not known how much Potassium an individual will use in a lifetime. It is very active as a functional element, assisting in digestion, muscle health, blood health, and in many other ways. It is also found as a part of the actual structure, the average body yielding about three and three-quarter ounces of this element after death. An outstanding property as associated with Potassium in the body, is its vital assistance in the process of attracting oxygen into the body from the air sacs of the lungs. Life and growth are stimulated by Potassium. It is essential in the rapid recovery from cuts, bruises, etc. In the blood stream it functions as an agent of coagulation where it works with calcium in forming the essential network which is responsible for the clotting of the blood. Potassium deficiency in the blood will provide against coagulation and bring about the possibility of serious bleeding.

Potassium indirectly influences the positive action of respiration and elimination. It also assists in heat equalization, and food potassium is a valuable agent in the treatment of chills,

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general fevers, and all diseases in which the temperature is unbalanced. Thousands of very serious febrile conditions have been corrected or avoided by the intelligent use of a tea made from vegetables high in potassium. The recipe for this broth, and directions for its use, will be found elsewhere in this volume.

Potassium foods are needed by all types of people, and it is suggested that the diet be selected with this need in mind. More Potassium foods and less proteins will assure greater muscle health and body alkalinity. Potassium starvation will result in muscle cramp, or failure of the muscle to develop properly. If the blood stream is poor in quality and fails to clot, if bruises and cuts fail to heal rapidly, if you are anemic, or if the heart action is slow and weak, a Potassium diet is indicated.

When hands and feet are cold, and body heat is disturbed, a Potassium diet will be found an adequate corrective measure. Super-acidity is corrected by a Potassium diet in conjunction with sodium. Starches and fats turn to acids in the body and are not properly digested when Potassium is not provided.

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Pancreatic breakdown or sugar diabetes is promoted by Potassium starvation. In all cases of constipation, or when food passes through the bowel without being digested, Potassium is deficient. Pyorrhea, and other distressing symptoms of the mouth, can be directly traced to

Key to Chart: *Fair **Good ***Excellent R. Raw C. Cooked

Food	Value Potassium		"A" Vitamin		F "B" G Vitamin		"C" Vitamin		Fuel Value
			R.	C.	R.	C.	R.	C.	
Almond nuts	**		*		**				*
Bitter greens	***		***	***	**	**	**	*	*
Bitter herbs	***								*
Blueberries	**						**	**	*
Water cress	***				***		***		*
Chevril	***								*
Chicory	***								*
Cocoanut	**		*		**				*
Chestnuts	**				*				*
Cabbage	*		*	*	**	**	***	*	*
Carrots	**		***		**	**	*	*	*
Dill	***								*
Endive	**		*				*		*
Figs	**								*
Green sage	***								
Lentils	**		*		**				**
Lettuce	***		***		**		***		*
Nasturtium leaves	***								*
Olives	***								*

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(Continued from page 144)

Prunes	**		**		**				**
Prunes(German)	***								**
Peaches	**		**		*		**	*	*
Peppermint leaves	***								
Parsley	***				**				*
Potato skins	***				*				*
Romaine	***								*
Spinach	*		***	***	**	*	***	**	*
Swiss chard	*		**	**	**				*
Thyme	***								
Wintergreen	***								
Walnuts	**		*		**				**
Whole oats	*		*		**				*
Gooseberries	*								

Potassium hunger. When muscles jerk and twitch and there are cramp-like pains in the region of the heart, and a bitter taste in the mouth, you need food Potassium.

Potassium is readily increased in the body by eating foods rich in Potassium, Iron and Silicon. Foods rich in sodium and chlorin tend to retard Potassium assimilation.

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Chemical Inventory

Chapter 10

Sodium

Sodium in its pure state is a silvery-white metal. It is highly alkaline in its reaction, and possesses a strong affinity for oxygen and chlorine. It is distributed very thoroughly throughout Nature, in sea water, in soil, and in all plant and animal life.

Common table salt contains a great amount of this element, where it is united with chlorine. When found, however, in this state, the sodium is inorganic and will not take the place of the organic sodium as found in plant and animal food. The body, undoubtedly, absorbs a small amount of the sodium thus introduced, but it is suggested that excessive use of salt is not constructive either from a chlorine standpoint or the sodium standpoint.

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Sodium in the Human Body:

Chemists have isolated about three ounces of sodium in the body after death. It is, however, a very important functional element, as well as a structural element, and it is impossible to estimate the amount of sodium used by the body in the course of a lifetime, or even a day. Sodium enters into the structure of all solid connective tissue, joints, cartilages, synovial membranes (joint linings), ligaments, and in the tissue of the spleen, brain, muscle, liver, and blood.

Sodium is highly essential in digestion. Starches will not be turned into energy without sodium. The secretions of the mouth are largely sodium, and all foods taken into the stomach should be saturated with this solution if digestion is to proceed with dispatch.

As a functional element, sodium works hand in hand with potassium in the saponification of fats. Fats cannot be used by the body until they are saponified, or turned into soap.

Sodium is the active principle in all ligament tissue. When it is not supplied in sufficient quantity, ligaments become dry, hard and unyielding, joints creek, movement is hampered,

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arches break down. Ligament health is largely a problem in sodium.

Expectant mothers, as they approach the latter part of the period, should provide plenty of sodium as a preventive measure against ligament hardening. The pelvic structure is composed largely of two irregularly shaped bones. They are laced to the base of the spine, by a series of heavy ligaments and at the meeting point in front, they are laced together by the same process. During parturition, when the pelvis widens to permit the passage of the baby through the birth channel, the pelvis must spread from these three points of contact. If the ligaments are dry and hard, parturition is made difficult and of longer duration. To provide against this contingency, see that sodium foods are available at this period.

Sodium works in the body to correct acidity. As a matter of fact, super-acidity is largely the result of sodium hunger. A high sodium diet will do more to correct an acid condition than any other one thing. Sodium is soluble in water; therefore, do not drink much water or use liquid foods to any extent when you desire to increase

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the sodium content of the tissues. During hot weather, much sodium is carried from the body by perspiration. INCREASE YOUR SODIUM DIET DURING THE HOT MONTHS OF THE YEAR. Sodium keeps calcium in solution. It will not harden in the joints and the blood vessels, if plenty of sodium is available. Many cases of high blood pressure are the direct result of calcium hardening, or saturation. These cases have responded very readily in many instances to a high sodium diet.

Sodium keeps the body sweet and young, supple and active. ACID IS AGE. ALKALINITY IS YOUTH. A high sodium diet is effective in the correction of rheumatism; especially joint rheumatism; acid deposits and gout. It is effective in the correction of acid regurgitation and chronic vomiting. So-called morning sickness, from which so many women suffer at the beginning of pregnancy, is a direct result of sodium starvation. A diet composed of sodium foods has been found highly efficient in correcting this condition.

Sodium provides against frontal headaches and sour stomach. It protects against catarrh.

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When the breath is foul and the tongue is dry and the face is hot, a sodium diet will prove of great benefit. Heartburn, so-called, or a burning sensation in the stomach, indicates sodium starvation. When joints are stiff and calcareous deposits, such as gallstones, kidney stones and bladder stones, appear, the diet is deficient in sodium. It is a paramount principle in dieting for the correction of hardening arteries. All old people, all bone type people, all ligament people, need sodium in abundance.

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Key to Chart: *Fair **Good ***Excellent R. Raw C. Cooked

Food	Value Sodium	"A" Vitamin		F "B" G Vitamin		"C" Vitamin		Fuel Value
		R.	C.	R.	C.	R.	C.	
Asparagus	**		**	**	***			*
Bean sprouts	***		*	*	**	**	***	*
Bamboo tips	***				*			*
Celery	***		*		**			*
Carrots	**		***		**	**	*	*
Cucumbers	*		*		*		**	*
Dried figs	*							*
Dandelion	*		**		**		*	*
Gizzards of fowl	***							*
Leek	**							*
Oysters	**		**		**	*	*	*
Pike	*			*		*		*
Pumpkins	*		**	**	*		*	
Red Cabbage	*		**	*	**	**	***	*
Radishes	*				**		**	*
Spinach	***		***	***	**	*	***	*
Swiss chard	***		**	**	**	**		*
Strawberries	*		*	*	*	*	***	*
Sweet Apples	**		*		*		**	*
Tomatoes	**		**	**	**	**	***	*
Turnips	*		*		**		**	*
Whey	*							*

PART TWO

Chemical Inventory

Chapter 11

Chlorin

Chlorin is a gaseous element, greenish-yellow in color, and gives off a caustic odor. It is highly poisonous in character. It is found distributed largely in the water of lakes, and the ocean. It occurs in all common table salt, and is mined directly from the earth in the form of rock salt. It is found, as well, in plant and animal life.

Chlorin is a great bleaching agent and is largely used in the commercial world for this purpose. It combines quite readily with other elements, some of its common combinations being chloroform, which is a combination of alcohol and chlorin; and chloride of lime, which is produced by combining chlorin and calcium.

The amount of chlorin found in the human body varies greatly. We must remember, however, that chlorin is largely a functional element

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in the body and, therefore, the total amount used is difficult to measure. As a functional element, it is one of the most important, being intimately concerned with the liquid activity of the body.

Chlorin works as an agent in increasing body heat. It works in the small intestine, where it is an active principle in bile to establish a positive peristalsis or movement of the small intestine. It prevents stagnation of liquids between and through the tissues of the body. It is a powerful cleanser, acting upon many forms of bacteria found in the intestinal tract. Through its activity, these are rendered harmless.

In the stomach it assists in preventing the formation of gas, it aids in urination and reduces weight. As a digestive agent, it assists in the assimilation of starches, sweets, and fats. It prevents the formation of pus, mucus, and phlegm. Its cleansing properties are of a very decided character. Much of the waste material of the body is carried from the tissues, and out of the body, by liquid activity. Chlorin is the agent which establishes and maintains normal liquid motion within the tissues.

In hydrogen obesity, chlorin is a valuable re-

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ducing principle. In this type of obesity, as we have cited before, the overweight is the result of stagnant liquid held between and in the tissues. Chlorin will take up forty times its own weight in water and is imperative in driving stagnant liquids from the body.

It is not uncommon to find an individual who suffers from chlorin excess. If it is assimilated in too great quantity, it will occasionally result in a partial shrinkage of the blood vessel walls, lessening the size of the tubes.

High blood pressure has in many instances been directly traced to chlorin excess. A peculiar fact, however, is that this hardening of the blood vessels is not the result of organic chlorin saturation, but rather an inorganic saturation, resulting from the too frequent use of table salt. The chlorin properties found in table salt are inorganic in character, and its complete absorption and assimilation is not possible. If much of it is retained within the body, the hardening of various tissues will result.

In a personal experience, recently had, a case of high blood pressure was noted in an individual, who at the same time suffered from

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hydrogen obesity. A salt free diet was prescribed and the blood pressure reduced; the weight, however, increased as much as fifteen pounds in a single month. Eventually, the patient was placed on a diet well supplied with organic chlorin, with the result that the weight was reduced and the blood pressure maintained at a normal figure.

It is not good policy to depend upon inorganic chlorin to supply the chlorin needs of the body. The safest method is to select foods rich in natural organic chlorin. Chlorin saturation manifests itself in a number of interesting ways: the temperature is below normal, cold perspiration is a common symptom, fainting spells are quite frequent. There appears to be some difficulty in breathing, and yet a reason for the condition cannot be found in the bronchi, or lungs. It is true, too, that chlorin saturation will give the body an old, mummified appearance. Whenever there is a tendency to chlorin saturation the condition may be corrected by selecting foods rich in carbon, hydrogen, iron, and potassium. The action of these foods within the body will tend to reduce the

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amount of chlorin present. You will, of course, at the same time, avoid the use of salt in the preparation and serving of any foods, and avoid selecting from your diet list any foods rich in natural chlorin.

Chlorin saturation is not as frequent as chlorin starvation. When chlorin is not present in sufficient quantity in the body, the lower limbs will swell and appear almost purple in color, while the lips and finger tips present a gray-blue aspect. The skin has a yellow tinge with an underlying muddy-blue background. There is a tension or drawing sensation through the region of the spleen and stomach; bloating just under the ribs is a very common symptom. It frequently happens that the muscles of the face will twitch, the bones ache. In extreme cases, there is a red, sand-like sediment in the urine. Dizziness is quite a frequent symptom, while the mental attitude is dull, worried, and morbid. The blood pressure is usually low. These symptoms can readily be corrected by selecting from the list immediately following, the foods which we have arranged.

To increase chlorin in the body, foods rich

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in carbon, hydrogen, nitrogen, and oxygen should be discontinued. All liquids used should be hot. The diet as a whole should be reasonably dry. (see notes on hydrogen obesity.)

Key to Chart: * Fair ** Good *** Excellent R. Raw C. Cooked

Food	Value Chlorin	"A" Vitamin		F "B" G Vitamin		"C" Vitamin		Fuel Value
		R.	C.	R.	C.	R.	C.	
Bacon (salt)	**							*
Beef (dried)	*							*
Blood (ox)	***							*
Cheese (goat's)	***							**
Cheese (Swiss)	***	**						**
Cheese (Rocquefort)	***							**
Cheese (cream)	**	**						**
Cocoanut	**	*		**				*
Cabbage (red)	**							
Cabbage (white)	*	*		**	**	***	*	*
Cucumbers	*	*		*		**		*
Egg yolk (raw)	***	***		**				*
Fish (salt)	**							*
Ham (smoked, salt)	**	*	*	**	**			*
Lentils	*	*	*	**	**			***
Lettuce	*	***		**		***		*
Meat juice	***							
Milk (cow's)	**	***	***	**	**	*	*	**
Milk (goat's)	***	***	***	**	**	*	*	**
Radishes	*			**		**		*
Spinach	*	***	***	**	*	***	**	*

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Chemical Inventory

Chapter 12

Sulphur

Sulphur is a non-metallic element of a fitful, smokey, volcanic nature, and varies from a lemon color to a dark amber. It is found abundantly in all parts of the earth. Especially is it found in great quantity where volcanic activity has taken place. It is also found in many forms of vegetation. Commercially it finds use in the manufacture of matches, gun powder, sulphuric acid, and various gases. It is also used largely as a disinfectant.

About four ounces of sulphur has been isolated in the body. It appears as part of the actual structure of hair, nails, and the outler layer of the skin. It is also found in combination with other elements in many of the body liquids. It is especially active in the formation of bile. As a functional principle, sulphur acts as a bleach-

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ing, cleansing, stimulating agent. It bleaches the skin, the hair, and the eyes; it drives taints of the body into the skin, from which point they are carried off.

Sulphur acts upon every cell in the body. It intensifies nerve life, adds sensation and quickness to all nerve tissue. It is sometimes called the "element of emotion." When sulphur is active the nerves are keen, sharp, erratic, and very sensitive; functional impulses to and from the brain are quickened. It is essential to reproduction.

True sulphur types are restless, volcanic, every nerve is highly sensitive. Pain is always increased under sulphur saturation. The body is warm and reacts pleasantly to cold showers, cold winds, etc. Sulphur does not add strength, it simply increases nerve energy.

In the blood stream sulphur is found united with phosphorus, in the ratio of one point of sulphur to two points of phosphorus. The following foods contain the combination almost identical with the demands of blood chemistry: Radishes, Chestnuts, Carrots, Pineapple, Celery, Bananas, Figs, Oranges, and Lettuce.

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These foods are good for blood building purposes. In the brain and muscle, the combination shows one point of sulphur to sixty-five points of Phosphorus.

The following foods contain the combination best suited to brain and muscle stimulation: Peas, Beans, Barley, Oats, Peanuts, Meat, Sea Foods, Rye, and Cottage Cheese. This list of foods, however, is very high in nitrogen. Before attempting excessive use of these foods, read your notes carefully on the above element and its function in the body.

Sulphur foods require careful preparation. It is sulphur that gives odor to the whole house when cabbage or sprouts are being prepared. These foods, especially cabbage, are wonderful, and if prepared right, yield many values needed by the body. They should always be prepared in their own moisture, in a utensil properly covered to prevent the escape of the gases; a low flame should be used, so that the food is prepared under the boiling point, and it should be cooked only long enough to provide for a softening of the heavier fibers. It is ready to serve when it bites clean. Sulphur foods are ruined when they

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are cooked in water, to which salt has been added, and then boiled. Sulphur favors versatility, emotionality, and adaptability. It beautifies the skin, and is needed by all slow, indifferent people.

Key to Chart: *Fair **Good ***Excellent R. Raw C. Cooked

Food	Value Sulphur		"A" Vitamin		F "B" G Vitamin		"C" Vitamin		Fuel Value
			R.	C.	R.	C.	R.	C.	
Almonds	*		*		**				*
Cabbage (red)	*								
Carrots	*		***		**	**	*		*
Cabbage (white)	**		*	*	**	**	***	*	*
Cherries (light)	*		**	**	**	**			*
Cauliflower	**		*		**	**	*		*
Chestnuts	*				*				*
Figs (dry)	*								*
Gooseberries	*								
Horseradish	***								
Onions	*		*	*	*	*	**	*	*
Peaches	*		**		*		**	*	*
Radishes	**				**		**		
Spinach	*		***	***	**	*	***	**	*
Sprouts	**		*	*	**	**	***	**	

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Chemical Inventory

Chapter 13

Magnesium

Magnesium appears as a white, earthy powder when it is prepared artificially. In its pure native state, it is a silver-white metal, very light in weight, highly alkaline in reaction, and has a tart, pungent taste. Epsom salts are made by uniting Magnesium and sulphur. It is the Magnesium which gives the powder its characteristic taste and laxative property.

Magnesium is found in soil, rocks, and all organized matter. Certain mineral springs are rich in Magnesium properties.

Magnesium in the Body:

A little more than three ounces of this mineral has been isolated in the body after death. Like many other elements found in the body, Magnesium is both functional and structural. It is found in the brain tissue, in the gastric juices, and in many other tissues and liquids of the body. It is required for body sanitation, for

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the renewal of brain and nerve tissues. Perhaps no other element has such a cooling and relaxing influence upon the whole body as Magnesium. It promotes brain and nerve action. It prevents the formation of poisons within the tissues. It acts as a nerve sedative and keeps the body sweet and clean. It clears up muddy skins and acts upon the albumin introduced into the body. It promotes sleep, cools the liver, and rushes the breakdown material from the body. It is a natural laxative. Because of its high alkaline properties, it is of great value in correcting acid conditions and, if reasonably incorporated in the diet, will do much to prevent disease resulting from this source.

Magnesium starvation encourages constipation and costiveness. Its intelligent use protects against acid formation, and overheated, overworked liver. Magnesium is needed when the head is hot and dry, and the nerves are on edge; when you suffer from phosphorus saturation and you are too electro-magnetic. When the nerve system is in a state of dynamic intensity, Magnesium is not being used in sufficient quantity.

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Magnesium is fundamental in **all** cases where elimination is negative and slow. To increase magnesium in the body eat foods rich in magnesium (see list). Avoid the use of drugs. Use magnesium foods and there will be no need of them.

All brain workers, nervous, hot-headed, high-strung, intense individuals need magnesium.

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Key to Chart: *Fair **Good ***Excellent R. Raw C. Cooked

Food	Value Magnesium	"A" Vitamin R. C.		F "B" G Vitamin R. C.		"C" Vitamin R. C.		Fuel Value
Apples	**	*		*		**	*	*
Almonds	***	*		**				*
Beechnuts	***			**				*
Citric fruits	***							*
Cherries	*	**	**	**	**			*
Cocoanut	**	*		**				*
Chestnuts	*			*				*
Chicken	*		*		*			*
Egg yolk	*	***		**				**
Frog legs	*							
Grapefruit	***	*		**		***		*
German prunes	*							*
Grapes	*	*		**		*		
Goat's milk	*	***	***	**	**	*		**
Goat's cheese	*							**
Goat's whey	*							
Gooseberries	*							
Lamb	*	*	*	*	*			*
Oranges	*	**		**		***		*
Peaches	*	**		*		**	*	*
Prunes	*			**	**			*
Pears	**			**		*		*
Smelts	*	*	*	*	*			*
Sole	*	*	*	*	*			*
Walnuts	***	*		**				*
Whiting	*	*	*	*	*			*
Wheat (whole)	***	*		**				*

PART TWO

Chemical Inventory

Chapter 14

Fluorin

Fluorin belongs really to the chlorin group. It is found in limited quantities in sea and river water, in swamps, and, as well, in some minerals. In animals it is found in the horns and hoofs, and it is also found in the feathers of birds. It unites readily with hydrogen, in which form it becomes a highly corrosive acid strong enough to eat through glass.

From three to four ounces of this element have been isolated in the human body after death. In most instances it is united with calcium. Fluorin is practically the only element with which oxygen will not unite. It enters into the actual structure of the body as part of the enamel of teeth, the outer covering of bone, certain eye structures, and the spleen. It has much to do with the health and repair of bone

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tissue, and plays an important part in the blood stream.

Many forms of disease germs are rendered harmless through the action of fluorin, particularly germs which characterize deep-seated disease, which usually attack the bones. Fluorin preserves the teeth; it works with calcium, manganese, and phosphorus in protecting and building the hard tissues of the body.

Fluorin starvation provides for teeth and bone disease. It gives rise to spleen enlargement. When the perspiration is greasy, and when the eyes are puffy and the lids stick together, fluorin is deficient.

Puss formations are common, the gums become loose and spongy, and bleed easily; nails, eyelashes, and skin are diseased; the tongue has a mustard-like coating; when milk produces distress and billiousness, and there is a pressure behind the eyeballs, and the eyelids are sore to touch, you need fluorin foods. Increase them by selecting one or two each day from the list given.

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Key to Chart: *Fair ** Good *** Excellent R. Raw C. Cooked

Food	Value Fluorin	"A" Vitamin R. C.		F "B" G Vitamin R. C.		"C" Vitamin R. C.		Fuel Value
Black Bass	*	*	*	*	*			*
Broth (from cartilage)	**							
Cauliflower	*	*		**	**	*		*
Cabbage	*	*	*	**	**	***	*	*
Cod liver oil	*	***						*
Goat's milk	*	***	***	**	**	*	*	**
Goat's cheese	*							**
Rocquefort cheese	*							*
Sauer kraut	*	*		*		**		
Spinach	*	***	***	**	*	***	**	*
Sprouts	*	*	*	**	**	***	**	
Water cress	*	***				***		

PART TWO

Chemical Inventory

Chapter 15

Iron

Pure iron is a silvery-white metal. As we see it in the commercial world, it is combined with many other substances. It is the base of steel, where it is found in combination with sulphur, silicon, manganese, and phosphorus. It is needless to remind you that iron is abundantly distributed over the crust of the earth, being found to some degree in most soil and rock formations. It is also found as part of the actual structure of plants and animals. When found in living tissue, however, the crude iron is highly refined. Iron is said to be the element responsible for the characteristic green coloring of leaves.

A comparatively small amount of it is found in the human body. It is the heaviest material entering into the body's structure, or playing a part in its activity. Chemists have isolated about

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two ounces in the average individual. It is said that approximately fifty-five grains of this amount are found in the blood stream. Here it is used in the formation of the red blood corpuscles.

In a previous chapter, we have indicated the importance of the red blood corpuscles as related to the problem of oxygen absorption. Iron is the most important of all blood salts. It is estimated that about six ounces of blood are forced into the lungs at every heart beat. At this rate, approximately the entire amount of iron found in the blood stream comes in contact with the air cells of the lungs 120 times per hour during the entire life of the individual, or something over 2,800 times every twenty-four hours. By the simple process of multiplication we arrive at the astonishing fact that approximately twenty pounds of iron have been carried to the lungs and out again every twenty-four hours.

The function of the iron here is to attract from the air taken into the lungs, the oxygen contained therein. Iron is said to be the twin brother to oxygen; the affinity between the two is so pronounced. Every cell in the body de-

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mands oxygen during every moment of life. If there is a shortage of red blood corpuscles there will be a shortage of oxygen, and a consequent devitalization of the cells.

Think what it would mean if the milk dealers replaced their trucks with hand wagons, or if they otherwise discontinued a part of their essential equipment. Somebody would go without milk. Such a milk shortage would not compare, in effect, with the oxygen shortage growing out of a similar condition in the blood stream. A lack of oxygen in the body is largely the result of impoverished blood. So acute is the iron hunger of American women that some investigators claim that eighty-five per cent of them are more or less anemic. Anemia in school children, as indicated by the last school census, is appalling.

Iron supports vital energy; it stimulates sex life; it increases body heat. It is the gateway through which oxygen enters the body. It promotes ambition and vigor. It prevents devitalization and fatigue.

Iron starvation manifests itself in lack of ambition, listlessness, devitalization, exhaustion,

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in cold hands and feet, in skin pallor, night sweats, and other evidence of extreme weakness. Most people do not assimilate enough iron. To bring about the most rapid assimilation, select from the lists given herewith foods not only rich in iron, but those rich in potassium, sodium, and calcium. These foods assist in attracting and assimilating iron. Foods rich in chlorin, sulphur, carbon, and nitrogen prevent iron assimilation, and these should be eliminated from the diet when iron increase is imperative. In part three of this book special recipes are given to increase iron in the blood. These may be used by the average family to very good advantage. Your attention is respectfully called to them.

Occasionally we find an individual in whom iron is assimilated in excess. The existence of iron in excess is readily determined by the high color of the face; it is usually a brick-red, the ears are purple, nose bleeds are frequent, the skin is hot and dry, the head is hot and heavy, the individual is always over-sexed. If the above symptoms appear, the diet should be selected so that foods high in iron are eliminated. Plenty

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of water should be used, and plenty of watery foods incorporated in the diet. Following is a list of foods rich in iron:

Key to Chart: * Fair ** Good *** Excellent R. Raw C. Cooked

Food	Value Iron	"A" Vitamin R. C.		F "B" G Vitamin R. C.		"C" Vitamin R. C.		Fuel Value	
Artichokes	*		**	**	*	*		*	
Asparagus	*		**	**	***			*	
Blood (ox)	**							*	
Blackberries	***					**		*	
Beet juice	***							*	
Berries (dark)	**					**			
Lettuce (head)	**		**		**	***		*	
Leeks	*								
Lentils	*		*	*	**	**		***	
Prunes	*				**			*	
Rice (Bran)	*				**			*	
Swiss chard	*		**	**	**			*	
Sorrel	**								
Spinach	*		***	***	**	*	***	**	*
Strawberries	*		*	*	*	*	***	**	*
Tomatoes	*		**	**	**	**	***	**	*

PART TWO

Chemical Inventory

Chapter 16

Silicon

Silicon is rather brown in color; it is practically tasteless and odorless. It is found in great quantities in the crust of the earth. Its distribution is almost as extensive as oxygen. It is also found abundantly distributed in the animal and vegetable kingdoms. It is found in the outer husks of oats, rye, wheat, and other grains; in the stalks of grain, wheat straw, etc.

In the commercial world silicon is used in many industries; in the manufacture of paints, in glass-making, bead-making, glazing, and many other forms of art. It is a pronounced conductor of electricity.

The chemist has isolated about one and one-quarter ounces of this element in the human body after death. It is found to some extent in practically all tissues of the body; principally

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in hair, nails, skin, ligaments, and in the linings of various organs, as well as the brain. Its main function is to impart vigor and resistance to the whole system; especially is this true of the reproductive system. It imparts luster to the hair and gives it vitality. It provides against the appearance of varicose veins, and a like tendency to loss of tone throughout the whole body. It counteracts cancer development and other malignant diseases. It is a powerful anti-septic.

Silicon starvation provides for, or contributes to, nervous breakdown, sex impotency, rose colds, hay fever, etc. Ligaments are weak and legs tire easily; the hair is dry and lifeless; ridges appear in the fingernails, the flesh is loose and without tone; warts and skin blemishes appear; the glands swell, and they are dry and hard. Carbon, hydrogen, and nitrogen all exhaust silicon. Therefore, when increasing the silicon content of the body avoid foods rich in these three properties.

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Key to Chart: *Fair **Good ***Excellent R. Raw C. Cooked

Food	Value Silicon		"A" Vitamin		F "B" G Vitamin		"C" Vitamin		Fuel Value
			R.	C.	R.	C.	R.	C.	
Asparagus	*		**	**	***				*
Barley (whole)	**								**
Cabbage	*		*	*	**	**	***	*	*
Cucumbers	*		*		*		**		*
Figs	*								*
Horseradish	*								
Lettuce	*		***		**		***		*
Oats (whole)	***		*	*	**	**			***
Spinach	*		***	***	**	*	***	**	*
Rice(unpolish'd)	*		*		**				**
Shredded Wheat	*								
Rye (whole)	*		*		**				**
Strawberries	*		*	*	*	*	***	***	*

PART TWO

Chemical Inventory

Chapter 17

Manganese

Pure manganese is a silvery-white metal. In general appearance it is much like pure iron. It is, however, much more brittle than iron, and will take on a very high polish. It is found abundantly in rock formation, soil, and in the vegetable and animal kingdoms. It is used commercially in the manufacture of high-grade steel, enhancing its property in forging and tempering. It is also used in the manufacture of glass and pottery.

Small amounts of this element are found in the blood cells, the outer coverings of bones, the linings of the heart and gall bladder, in the capsules of the joints, and in the larynx. Its hardening properties manifest themselves in bone and joint protection. It is of value as a tonic to the bone and ligament structure. It

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retards the activity of cancerous growths, tuberculosis, and other deep-seated diseases. It prevents the development of gout and joint inflammations. Many of its functions have not as yet been fully determined, they are still under investigation. About one ounce has been isolated in the body, but that small amount evidently performs a great service in adding strength and resistance to the harder structures of the body.

Some very peculiar symptoms are evidenced in manganese hunger. Outstanding among the list are the following: Confusion and dizziness as a result of a turning motion, car-sickness, sea-sickness, and the inability to determine the exact position of the body, or to maintain definite outlines as they actually appear to others. The eyes will itch and smart, hay fever and rose colds are common, the joints of the body are sore and inflame readily. Manganese foods are of great value in the prevention and correction of deep-seated chronic diseases, especially those affecting bones and joints.

Manganese hunger will contribute to inadequate vision, in that the eyeballs are tender, and color flashes appear before the eyes. Shifting

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joint pains at night is another symptom of manganese hunger. When food passes through the intestines without being digested, a manganese diet is needed.

Very few people get too much manganese. The foods in which it is found are not common in character in that they are not found on the average table every day of the week. Nasturtium leaves, parsley, peppermint leaves, and wintergreen leaves, as well as endive, should be served frequently as part of a salad. Teas made from peppermint or wintergreen leaves are also valuable agents in increasing manganese in the body. It is suggested that manganese foods be incorporated to a greater extent in the general diet, so that their beneficial effect may be added to that of the common foods. In diseased conditions, their use will be found valuable as indicated by the symptoms previously outlined.

Following we provide a list of foods rich in manganese:

THE BUSINESS OF LIVING

Key to Chart: *Fair **Good ***Excellent R. Raw C. Cooked

Food	Value Manganese	"A" Vitamin B.	C.	F "B" G Vitamin R.	C.	"C" Vitamin R.	C.	Fuel Value
Almonds	*		*		**			*
Chives	*							*
Chestnuts	*			*				*
Egg yolk	*		***	**				**
Endive	*		*			*		*
Nasturtium leaves	*							
Peppermint leaves	*							
Pignolias	**							
Wintergreen	*							
Walnuts	*		*	**				*
Water cress	*		***			***		*

PART TWO

Chemical Inventory

Chapter 18

Hydrogen

Hydrogen is a colorless, odorless, tasteless gas, and possesses the peculiar property of forming liquid when united with oxygen.

Water is formed as a result of hydrogen activity.

It is found wherever life exists. Just how abundantly it is distributed throughout the earth is readily visualized when we remember that more than one-half of the surface of the earth is hidden by water, and in addition to that, all forms of life are largely water. Plant life, as a whole, is more than 75% water, animal life approximately 65%.

The brain, with which you think, is said to be 86% water, the blood 79%, the liver 70%, the bone 50%—your body as a whole is about 70% liquid. With these figures in mind, we

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readily appreciate the importance of water as a factor in maintaining health.

First of all, the body must have its daily supply; this is evident to any one who has been compelled to go without a drink for a single day. Thirst is Nature's demand for more water.

Much has been said and written as to the amount of water the average individual should drink each day. Some contend that very little should be used, that one should depend upon the juice of fruits and melons for the daily supply. Others contend that we should use a great deal of water, provided, of course, it is fresh and free from taint.

After all it is an individual question. We do not all require a like amount. How then are we going to arrive at a definite rule that will suffice for general use? Suppose we attempt a solution of the problem by inquiring into the function of liquid within the body. This will at least give us something definite to begin with.

You have seen ink being absorbed by a blotting paper. Such a process is going on in the body every moment of life. Liquids are cours-

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ing through the blood vessel, through the lymphatic system—they are seeping through the tissues, between the cells and through them, carrying in the repair material and carrying out the waste. All food taken into the body is kneaded and churned in liquid. The pancreas manufactures about three pints of liquid, saliva is manufactured by the pint, digestional juice in like amount. Much liquid is carried from the body in the form of perspiration, and the kidney clears approximately three pints from the body daily. If the liquid is not forthcoming as a part of the diet, then it should be very evident that some one of these activities must be hampered, if not entirely prevented.

It is true that some good folks retain too much liquid within the tissues—others retain too little. It is equally true that a reasonable amount is absolutely necessary to healthful living. Just how much you, as an individual, will need, can readily be determined by checking up a few very obvious reactions.

If the tissues of your body are flabby, soft, loose, soggy, or putty-like—you are either getting too much liquid food, or are not using what

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you get properly. You are holding too much liquid, and should reduce your liquid diet to a minimum, or approximately three pints per day, until the tissues begin to tighten up and become more solid. Never jeopardize the kidney action by reducing the total discharge below the normal three pints. This subject is clarified under the chapter dealing with hydrogen obesity.

If, however, the body is hot and dry with little or no perspiration, muscles flat and lean, the urine scanty and highly colored, you are not getting enough liquid in your diet.

Drink at least two quarts of liquid each day, until the body acquires the habit of using it. It is not necessary that the liquid be cold. Much better results will follow if about half of the amount is used at blood heat or above. Hot liquids saturate the tissues much faster than cold ones. Soups, broths, and other hot liquid food may be used freely as part of the water diet.

Thousands of average individuals find that two quarts of liquid food per day will supply the necessary amount of moisture for the body. How and when the liquid is taken will naturally

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have a bearing on the net result. The following rules can be generally applied to good effect:

Do Not Drink Iced Liquids With Meals

Normal heat is essential to digestion. If cold liquids are abruptly "dumped" into the stomach while eating, the temperature of the stomach is lowered. This retards digestion and it proceeds again only after the blood is carried to the liver, reheated, and returned to the digestive tract.

Drinking at Meals

It is common practice to advise against drinking water while eating. It has been assumed that the water diluted the gastric juices and prevented digestion. This assumption is not founded on fact. The gastric secretions are increased as a result of drinking water at meals, rather than otherwise; the habit has proven beneficial in thousands of cases. The great difficulty associated with the practice is the common habit of washing food out of the mouth into the stomach before it is properly masticated. This is especially disastrous when starches are considered. Starches are largely, if not almost entirely, digested in the mouth. They should

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always be thoroughly masticated and mixed with the alkaline secretion of the salivary and other mouth glands before they are permitted to enter the stomach.

Two or three glasses of water, or other liquid, should be taken as part of the meal. The liquid, however, should not be extremely hot or extremely cold. It should be sipped slowly—not gulped down—AND NEVER BE TAKEN INTO THE MOUTH WITH OTHER FOOD. DRINK DURING YOUR MEALS—BUT ONLY WHEN THE MOUTH IS EMPTY.

Do Not Drink Iced Liquid to Excess in Hot Weather

When the body is overheated, it is not good practice to attempt to chill it by the use of iced drinks. If used at all they should be sipped slowly. Much better results are obtained if a slight stimulant is taken hot instead of cold. When overheated sip a cup of hot tea, properly brewed, and flavored with a teaspoonful of lemon juice. A half spoon of sugar is permitted, if desired. This practice will level the body heat safely and rapidly.

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When the body is active, health normal, and there is no special need to decrease the liquids in the body, it is a good plan to start the day with a tall glass of water. If you enjoy cold water, use it; if hot water works better, use that. The important point is to get the water.

A spoonful of lemon juice added to cold water has a delightful effect in most cases. It is even permissible, occasionally, to substitute a few grains of salt for the lemon juice. This should not, however, become a regular practice. It should never be done if there is any tendency to high blood pressure or kidney trouble. It may be used twice or three times each week if the tissues are water logged or flabby. The practice will tend to increase chlorin activity and provide for increased liquid movement. Results are more marked if warm water is used.

PART TWO

Chemical Inventory

Chapter 19

Chemical Balance

We have attempted in the previous chapters to familiarize the student with the nature and functions of the various elements which make up the body, and which work within the tissues to bring about a normal expression of life.

The importance of capturing these elements should be self-evident. It should be equally apparent that many diseased conditions, both of structural and functional nature, may result from chemical starvation or saturation. Chemical starvation is much more common than chemical saturation. When we find chemical saturation, it is usually true that the individual possesses an inherent tendency, amounting almost to an idiosyncrasy, to absorb that particular element in excess. When this is true, the chemical balance may be established and held in control by eliminating from the diet the food?

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which are particularly rich in the element naturally absorbed to excess. In the average individual, Nature seems to provide for balanced selectivity. This balance, however, may be interrupted and prevented from fully expressing itself by persistent dietetic habits.

Every habit affects the defense mechanism of the body, and if we persist, over a period of time, in disregarding the necessity of a balanced diet, eventually this faculty of balancing the absorption will be weakened, if not completely destroyed.

It is good practice to see that the diet includes each class of food every day. A certain amount of energy food is necessary to provide vitality. A certain amount of building food is necessary to take care of the wear and tear of the tissues, and it is equally important that we capture each day a sufficient amount of the functional values to run the body and keep it chemically active.

It is difficult to simplify the problem any further than to say that the fuel intake can be amply taken care of if we measure in calories the foods that are taken into the body. In Part Two of this volume, the calory problem is handled in a simplified form, and the required

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amount of calory intake properly outlined. About seventy per cent of the diet in volume should be composed of functional foods. Thirty per cent in volume may be a combination of proteins and carbohydrates, as these represent the energy value. For the benefit of quickly determining what elements are needed, or are being absorbed to excess, we provide herewith a summary of "deficient," "balanced," and "excess" symptoms. This we have attempted to simplify, so that little difficulty should be experienced in checking oneself to determine excess or deficiency.

Do not read this summary with the idea of determining the existence of a symptom. If a condition exists, or symptoms appear, then study the following table with the idea of finding the cause of the symptom. Most of us, upon reading symptoms, find them in ourselves and, as a matter of fact, they may not exist save in our imagination. We have known people to actually land in bed, to all intents and purposes suffering from a disease which they have never contacted, except in the process of studying it from books.

It is not advisable to attempt self medication.

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The practice of dosing oneself with medicine, or putting oneself on a radical diet, is not in harmony with the accepted principles of common sense or sane procedure. Learn to think of the chemical values found in foods as the things which build the body and operate the various glands and systems. Common sense is a wonderful guide in the selection of foods. IT IS VERY NECESSARY IN CORRECTIVE DIETING.

SYMPTOMS OF DEFICIENT, BALANCED, AND EXCESS FOOD VALUES

Deficiency	Balance	Excess
CARBON		
Underweight, lassitude, lack of energy.	Normal weight, normal energy.	Acid, catarrh, gas, ulcers, sour stomach, diabetes, inflammatory rheumatism, heartburn.
HYDROGEN		
Hot, dry tissues, fever, lean old muscles, scanty urine, high colored urine, dry glands.	Normal moisture, normal elimination, normal perspiration, clear skin.	Soft, flabby, putty-like tissue, hydrogen obesity, dropsy, excessive perspiration.
CALCIUM		
Acid body, sour stomach, eczema, foul breath, sour body odor, tubercular tendencies, night sweats, poor bone and teeth development, impoverished blood.	Long life, sturdy bones, alkalinity, blood health, good teeth, sturdy constitution, dependable characteristics.	Hardening of the arteries, kidney stones, gall stones, bladder stones, stiff unyielding ligaments, creaking joints, stubborn, pig-headed disposition.

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Deficiency	Balance	Excess
SODIUM		
Acid, gout, nausea, vomiting, sour stomach, frontal headaches, foul breath, stiff joints, enlarged joints, hardening arteries.	Alkalinity, normal digestion, supple ligaments.	Subject to heat strokes, corpse-like color, super-sensitive to drafts, urine alkaline reaction, restless, extreme, erratic disposition.
NITROGEN		
Undernourished body, poor muscular development, lacking physical strength, no reserve.	Normal, full muscles, well nourished body, physical strength.	Protein poisoning, clogged kidneys, congested liver, heavy slow body, poor circulation, high blood pressure.
POTASSIUM		
Muscle cramp, impoverished blood, blood fails to clot, weak heart action, anemia, acid, pancreatic breakdown, constipation, pyorrhea, albumin, twitchy muscles.	Resilient muscles, normal blood clotting, sturdy heart action, pancreatic health.	Impulsive, impatient, drowsy, sleepy, fast pulse, nervous after physical exercise, melancholy.
OXYGEN		
Listless, tired, lacking ambition, pale, lazy, yawning, anemia, acid, tubercular, fermentation, sluggish, overweight.	Normal color, bright eyes, red lips, active, alive, optimistic, vital, buoyant health.	High blood pressure, hot dry skin, overheated blood, hemorrhage.
PHOSPHORUS		
Cold, clammy skin, death-like color, brain fag, mental exhaustion, sluggish cell action, nerve breakdown.	Clear thought, mental alertness, mental health, sturdy bones, normal cellular activity, vital reproduction.	Visionary, abstract, yellow-gray skin, high strung, edgy nerves, over-keen, irritable, restless, clairvoyant.

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Deficiency	Balance	Excess
MAGNESIUM		
Constipation, costiveness, muddy skin, clogged liver, cold sores, fever, negative, slow elimination, hot dry nerves.	Normal bowel action, clean intestinal tract, cool comfortable body, efficient elimination.	Overactive bowel, too rapid food passage. (Note: Few people get too much magnesium.)
FLUORIN		
Bone disease, enlarged spleen, weak bones, greasy perspiration, pus formation, spongy gums, eyeballs sore to touch, granulated, puffy eyelids, lack of resistance to deep-seated disease.	Strong, well-knit bones, sturdy gums, healthy eye coverings, resistance to bone and deep-seated disease.	No excess evident.
IODINE		
Sluggish glands, enlarged thyroid, dull mind, high blood pressure, obesity, lime starvation, retarded maturity, poor teeth, protein poisoning, thyroid exhaustion.	Gland health, normal bone development, normal teeth development, thyroid health.	Fast heart, bulging eyeballs, inward goiter, underweight, erratic sex reaction, irritable, restless.
SILICON		
Enlarged liver, hay fever, rose colds, weak ligaments, low sex vitality, dry hair, warts and skin blemishes, gland swelling.	Normal sex strength, resistance, body tone.	No excess evident.
SULPHUR		
Sluggish liver, constipation, muddy skin, slow nerve transmission, dull impressions, lacking adjustability, lacking emotion.	Versatile, adaptable disposition, keen nerves, clear skin, normal bile flow.	Volcanic, hysterical, increased pain, tender skin, restless, emotional, gas.

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Deficiency	Balance	Excess
CHLORIN		
Yellow skin, tension through stomach and spleen, bloating, frontal headache, dizziness, hydrogen inactivity, low blood pressure, heat waves, scanty urination.	Normal osmosis, normal blood pressure, normal bile activity.	Peevish, suspicious, costic, low temperature, fainting, dry muscles, cold sweats, frequent urination, high blood pressure.
IRON		
Listless, tired, anemic, cold hands and feet, acid, headache at base, weakness, low vitality.	Vitality, pep, magnetism, healthy blood, optimistic, energetic.	Over-sexed, blood pressure, hot head, dry hot skin, nose bleed.
MANGANESE		
Poor memory, absent-minded, seasickness, hay fever, rose colds, sore joints, oily scalp, tender eyeballs, color flashes.	Normal sense or direction, healthy joints, hard bone.	None apparent.

PART THREE

PART THREE

Chapter 1

Excess Baggage

Excess weight is a costly item, and is never good business. This we know, without being told; but how to get rid of it without loss in other directions is another problem.

The mere fact that we consult a standard table of weight, step on the scale, and get a thrill out of a two-pound loss, means nothing. Our thrill is justified only when we discover that the balance between comfort, vitality, and weight is what it should be at the efficiency peak. To be standard in weight, and below standard in comfort and vitality, is obviously bad business.

Standard weight tables may be used by the average individual with a relative degree of satisfaction, but the average individual is less concerned about his weight than those who are not average. Overweight is largely an individual problem. Certainly it requires more than superficial thought, if we anticipate a modification of the excess.

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Humans, like other animals, vary in **build**. It is not common sense to expect a race horse standing ten hands high at four years of age to weigh the same as a draft horse of the same height and age. It is equally absurd to expect a stocky individual with a long, deep, wide body, and short legs and arms, to weigh the same as a lanky individual with a short, shallow, narrow body, and long legs and arms. Weight scales have not taken depth and width into consideration. They have considered only height and age.

BODIES DEVELOP ACCORDING TO CERTAIN FIXED, NATURAL TENDENCIES. We can, however, keep the tendency to excess weight under control, and prevent the accumulation of fat, water, or flesh, as the case may be. To do this intelligently, our first task is to establish the reason for the excess baggage. Some are overweight because of fat, others because of excess protein, and still others because of glandular excess or deficiency. Common sense suggests that no single diet will suffice for every type. One universal rule perhaps can be applied to each of the above types at the beginning of the corrective period. The three-

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day fast may be used in every instance to good advantage.

With the exception of the glandular type of obesity, the tendency to overweight is natural, just as much a part of the individual as his hands and feet. It would appear that each person inherently possesses certain properties related to the capture and conservation of food values, more or less at variance with his fellows. This natural characteristic is responsible for our difference in physical appearance. To reduce the conception to a common-place experience—some are born who naturally capture and conserve weight building material to excess. When this is true of an individual, we may reasonably expect to recognize the evidence of this excess in the physical makeup. Others are born with opposite tendencies. They may live on the same food, use it in like amount, and yet fail to capture or conserve the properties responsible for the fat. It follows that individual selection is necessary, and that limitations in the matter of increasing or decreasing weight are very evident.

Fat is the product of sugars and starches stored up instead of burned up. These foods

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are necessary to efficient living, regardless of type or tendency, but their use should be governed by personal need, and not by acquired taste or habit. To clarify the problem, let us call to mind a common illustration:

Our friend John steadily grows thinner, his wife just as steadily grows more rotund. He gets nothing but distress out of the dainty French pastries, pies, cakes, jellies, jams, and cream concoctions served by his wife, while she derives from them both pleasure and excess baggage. What is the answer? Really an old one: "What is food for one, is poison for another." John could gorge himself on his wife's favorite dishes and lose weight, become irritable, cross, and ill. He simply remains John, the long, lean, lank chap we have always known. Some inherent tendency which is just a natural part of him stands between his straight, lank lines, and the rotund, roly-poly outlines of his wife. It will be noticed as well, that he does not like his wife's favorite dishes and she is not fond of the ones he prefers.

We are interested in knowing just why John's wife is rotund and well-nourished, and why John is the opposite. John does not assimilate fat pro-

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ducing foods—his wife readily assimilates them. She is a natural carbon type. Every time food is taken into her body the carbon values are seized, assimilated, and stored up, through and between the tissues. Just as long as she lives this will be true of her. It follows, then, that many of her preferences in the matter of food will be high in carbon value. Starches and sweets are naturally preferred and quite naturally eaten to excess.

As a matter of fact, when this natural tendency appears, a diet should be selected which is relatively low in these values. All foods are not alike in their carbon quantities and qualities. Some foods provide very little, others are composed almost wholly of carbon, hydrogen, and oxygen. These foods are natural fuel foods. Nature has provided them for the purpose of energizing the body. A certain amount of storage is valuable. Nature has also provided for that, but it is undoubtedly not the intention of Nature that a diet should be composed almost completely of this class of food. The following foods provide little else save potential heat which should be burned up, and if not burned up, will be stored up as fat:

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Potatoes, prepared after being peeled, pies, cakes, cookies, cream puffs, polished rice, doughnuts, arrowroot, candies, chocolates, jams, white flour products, sweet crackers, wafers, macaroni, graham flour, molasses, honey, corn syrup, maple syrup, cornmeal products, navy beans, cream soups and cream dressings, corn bread and butter, waffles, hot cakes, and spaghetti, malted milk, chile, as well as any number of so-called prepared cereal breakfast foods, especially if served with cream and sugar.

It will be noticed that these foods are found more frequently on the American table than perhaps any other single class. Our dietetic habits usually follow the lines of least resistance, and these foods seem to possess a certain charm for most people. Especially do they find favor with true carbon individuals.

The carbon individual is readily recognized by the rotund outline which characterizes every part of the physical makeup. The head is round, the cheeks convex, the chin—well, there are usually two or three of them, each one following the rounding contour of the other. The neck is round and full, both front and back, the tissue

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usually folding in symmetrical outline. The chest is round, full and well upholstered, with soft folding tissues, gradually merging into a round, bulging abdomen; legs and arms are short, round and dimpled at joints, hands conical in shape, with short, smooth fingers. The whole outline is round.

Inherently these carbon people are decidedly proficient in the capture and conservation of fat building values. This tendency is simply a part of them and unless a determined effort is made to alter the dietetic habits over a period of years, excess baggage will always encumber their activity, and prove a distressing liability.

The foregoing list of foods should form the smallest part of the diet. In fact, most of them can be entirely eliminated without danger of devitalization.

All foods contain more or less carbon and the natural property of excess assimilation, which characterizes the carbon individual, will provide ample energy even though the diet is composed of foods low in carbon values. The problem of reducing this type of obesity is concerned with foods rich in iodine phosphorus,

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calcium, magnesium, sodium, potassium, iron, and silicon. We are aware that it is an easy matter to turn to these particular food lists and provide an intelligent selection from them, but we are conscious of the fact that most of us prefer to have it in a more concrete form.

For that reason we suggest the following food list, which has been segregated under the various groups to further simplify the problem. Please understand that the food selection, as given here, will not bring about a complete and efficient expression of life in this individual, unless it is religiously followed year in and year out.

There is no permanent value associated with any dietetic procedure for the purpose of reducing weight, that is purely temporary in character. The treatment of obesity is not a problem of days or weeks—but, rather, months and years. In the true types—it lasts as long as life itself.

Carbon individuals should confine their food selection to the foods listed at the end of this chapter, keeping the calory intake at approximately the 2,000 mark per day, varying the foods so that they do not become tiresome.

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It is advisable to take a three-day fast at the beginning of your effort to reduce. This fast will result in immediate benefit from the standpoint of toxic elimination, and will at the same time prepare the tissues and the digestive apparatus, itself, for the change. At another point in this volume, under appropriate heading, detailed information is given as to the proper method of taking the three-day fast. It is suggested that the student refer to this chapter, and follow the directions religiously. Especially is this caution valuable as related to breaking the fast.

The following food list may be copied from these pages and placed in a convenient spot, so that the food selection can be made with the least amount of trouble.

Select all meats used from the following list:

Meats

White meat of chicken

Crisp Bacon

Lamb chop

Lean boiled ham.

Note: (Meats used must be broiled, boiled, or roasted, and should not appear in the diet more often than three times per week, at which time only a small portion should be used.)

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Fish

Sole
Trout
Smelts

Crab
Clams

Note: (Clams should be steamed when used, or eaten raw. Fish broiled or baked.)

Soups

Clear Celery	Vegetable Bouillon	
Clear Tomato	Essence of Spinach	Consomme
Green Turtle	Essence of Celery	Rose Broth

Vegetables

Cauliflower	Dandelion Greens
Celery	String Beans
Cucumbers	Asparagus
Green Corn	Beet Greens
Green Peas	Swiss Chard
Radishes	Tomatoes
Beets	Cabbage
Carrots	Artichokes
White Potatoes	Green Onions
(with skin)	Lettuce
Spinach	Mushrooms.

Note: (Vegetables used may be taken raw or prepared in their own moisture. They should be served plain without cream or other dressings.)

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Cereals

Shredded Whole Wheat (Served with Skimmed Milk)

Indian Meal—May be used occasionally, slightly sweetened with honey, and served with skimmed milk.

Breadstuffs

Zweibach

Rye Crips

Salted Wafers

Oven toasted Whole

Wheat Bread

Sweets

Cured Honey

Corn Syrup

Maple Syrup

Fresh Fruits

Lemons

Raspberries

Peaches

Blackberries

Pears

Huckleberries

Oranges

Strawberries

Sweet Apples

Cantaloupe

Grapefruit

Cherries

Pineapple

Water Melon

Grapes

Note: (When cooked fruits are served they should be prepared without sweetening, and eaten without cream, or sugar.)

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Dried Fruits

Dates	White Figs
Apricots	Prunes
Black Figs	

Nuts

Pecans	Salted Almonds
Hazel Nuts	English Walnuts

Dairy Products

Eggs (coddled, boiled, or poached.)	
Whey	Cottage Cheese
Buttermilk	Rocquefort Cheese
Butter (in moderation)	Strong New
Swiss Cheese	York Cheese
Skim Milk	

Beverages

Half and Half	Black Tea (with
Fruit Juices	lemon juice, no
Black Coffee	sugar)

Puddings and Desserts

Snow Pudding	Jello
Blanc Mange	Fruit Ice

Condiments

French dressing (made with lemon juice).
Mayonnaise (made with lemon juice and mineral oil)

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Green Olives, Ripe Olives

Limit the Calory Intake to 2,000 Daily

Carbon saturation is characterized by a craving for carbon foods in the majority of cases. With this in mind, carbon individuals are going to find it extremely difficult to satisfy their hunger and content themselves with the foods here listed for their use. They, of all people, are required to center every bit of their will power to prevent an overstepping of the dietetic boundary. Curbing the appetite is no small problem for the carbon individual.

The reward, however, for conscientious effort in this direction is well worthwhile. Excess fat is not only inconvenient from the standpoint of physical weight, but it is actually unhealthy. CARBON SATURATION IS ALWAYS ACID SATURATION. Acid means age, and eventual disease. It is respectfully suggested that the student interested in this particular phase of the work, refer again to the chapter covering the nature and function of carbon in the body, and become conversant with the carbon requirements, and the danger of carbon saturation.

PART THREE

Chapter 2

Hydrogen Obesity

Hydrogen individuals are overweight because too much liquid is retained within the tissues. The body is not lined with fat; it is simply filled with water. The inherent tendency characterizing this type is concerned with the balance between chlorin and hydrogen.

Hydrogen individuals do not readily absorb chlorin from their foods—in some instances it is practically disregarded. When this tendency prevails, certain physical characteristics appear. The body does not develop a rounded outline. The general picture is one of sagging, straight lines, rather than otherwise. This fact is readily recognized by the flabby, sagging tissues which may pile up at any one of a number of places about the body; generally speaking the excess baggage is usually quite universally distributed. Perhaps the following description will assist in recognizing Hydrogen Obesity:

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The head is more often square than otherwise, with sagging cheeks, usually more or less straight in outline. The neck is flabby, baggy, with a duelap, or area of sagging tissue at the underside of the chin. The chest is flat with heavy sagging breasts, the lower bowel is distended, and drooping, while the body is usually flat just under the ribs. The whole appearance presents a heavy, broad, drooping attitude. The tissues lack firmness, they are flabby, hips are wide, legs are large, with sagging outlines, hands are usually small, broad, soft, and cold to touch. The skin is creamy in youth, velvet-like in texture, but later on assumes a pasty pallor. Motion is cumbersome and awkward.

The problem of reducing Hydrogen Obesity is related to chlorin, iodine, calcium, phosphorus, and silicon. The diet should be largely dry in character. We mean that liquids are not to be used to excess. All liquid taken into the body should be piping hot and sipped slowly. Only a sufficient amount should be used to provide against inefficient bowel and kidney activity. The following foods are suggested as essential in the correction of this condition:

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Dairy Products

Goats' Cheese	Swiss Cheese
Goats' Milk	Rocquefort Cheese
Goats' Whey	Raw egg yolk

Meats

Beef (dried)	Pork (salt)
Bacon (salt & smoked)	Steak (Round)
Ham (salt & smoked)	Steak (Sirloin)

Fish

Abalone	Herring (smoked)
Clams	Muscles
Crabs	Pike
Fish (dried)	Salmon (smoked)
Frog Legs	Scallops
Fish (salt and smoked)	Smelts
Haddock (smoked)	Trout
Herring (fresh)	White Fish (smoked)

Nuts

Almonds (salted)

Cereals

Steel Cut Oats	Whole Oats
Shredded Wheat	Whole Barley
Rice	

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Breadstuffs

Oven-toasted Whole Wheat Bread	Rye Crisp
Whole Rye	Zweibach

Fresh Fruits

Lemons	Pears (Bartlett)
Limes	Rhubarb
Oranges	Strawberries

Soups

Green Turtle Soup	Abalone Broth
Clam Broth	

Vegetables

Artichokes	Lettuce
Asparagus	Moss (Irish)
Beets, and Beet Juice	Mushrooms (Black)
Beans (Lima)	Onions
Cabbage (red)	Radishes
Cabbage (white)	Sauer Kraut
Carrots	Spinach
Corn (green)	Squash
Cucumbers	Sorrell
Garlic	Tomatoes
Lentils	Water Cress

Keep the calory intake at 2,000 daily.

It is desirable and very necessary that the kidney action be increased, and that the skin

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action as well receive very close attention. Salt rubs, salt baths, and sweat baths all contribute to increased skin function, as well as chlorin saturation.

The treatment of Hydrogen Obesity is a serious thing—and should not be undertaken without intelligent supervision.

It is especially necessary that the liquid refuse from the body be maintained at a high level—the normal three pints per day should be the guide by which the intake and outlet is governed. Many cases have been observed under the above diet, where the liquid loss during the day almost doubled the liquid intake for the same length of time.

If the urine is scanty and high colored, it is advisable to resort to the use of hot liquids, slightly salted, until the normal flow is established. This can easily be accomplished by drinking two or three glasses of hot water, each containing a pinch of table salt.

PART THREE

Chapter 3

Protein Obesity

Protein types are naturally overweight and ordinarily difficult to reduce without devitalization. This type of obesity is characterized by the predominance of heavy, solid muscle. Protein men are decidedly masculine; protein women appear well-nourished and developed. Both men and women of this type respond very readily to physical exercise and usually enjoy it. The muscles develop rapidly and soon become well-rounded and outstanding. They are natural physical culturists. Perhaps the following outline will assist in completing the picture:

The head is usually symmetrical in shape, but appears rather small by comparison. The neck is well rounded, muscular and heavy at the back, giving the impression that the back-head is rather short. The chest is high, full, with plenty of depth, and width. In men the physical

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development is decidedly striking. It appears massive and powerful. In women the busts are high, well rounded, and solid; shoulders well padded and smooth. In youth the body gradually tapers to the waistline, but after forty assumes a curving outline, directly from the chest wall in front, the girth sometimes increasing as much as eight inches in two years' time. This is true of both men and women. The hips and buttocks are heavily rounded and solid, the legs are large in circumference, heavy and muscular. Arms and shoulders are highly developed; the deltoids prominent. The whole appearance suggests a massive, athletic, powerful physique.

Because of the muscle bulk and the increased depth and width of the whole body, these folks are always overweight. They are naturally athletic, and attempt to reduce their weight through exercise. As a matter of fact, exercise simply increases the denseness of the tissue and does not lower the weight. If effort is made to reduce, it is necessary to provide against devitalization. Our experience has been that the huge bulk of muscle is a factor to be reckoned with, especially as it must be exercised, and the energy required for this purpose is much above the average.

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Hunger is always pronounced after exercise and a sensation of weakness follows, unless food is ingested immediately. We have seen this type burn up and exhaust the entire calory content of five pounds of milk chocolate in less than one-half hour on a wrestling mat. In spite of the fact that this enormous amount of milk chocolate was ingested fifteen minutes before the match, the wrestler, after a brief rest at the conclusion of the match, was profoundly hungry and actually gaunt and weak.

These people are natural protein eaters, rare steaks, roasts and grilled meats, eggs, and cheese, with combinations of spaghetti, tomatoes, cheese, chopped meats, etc., appearing in the diet without interruption. A heavy protein diet of this character eventually brings about their downfall. Their blood stream is heavy and dense, more often greater in volume than normal. The body oxydizes readily and the kidneys are forced to work overtime in their effort to clear the breakdown from the body. This type is predisposed to Bright's disease and high blood pressure, and it is well to keep these things in mind when selecting the diet.

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We provide herewith a list of foods which should form the main bulk of the diet for this type; it is not anticipated that the true type will at any time correspond in weight to the average individual. If it approximates the weight suggested as being efficient in the weight table for the protein type found at the conclusion of this narrative, then there is little danger of trouble as far as overweight is concerned. An attempt to reduce the weight beyond the suggested figures is advised against. It is not normal to this type. Always remember that vitality is more to be desired than so-called normal poundage.

In the following list we have purposely omitted foods which are high in nitrogenous properties. The protein type will naturally absorb sufficient protein or nitrogen if foods are selected which contain a lesser amount.

MEATS

Crisp Bacon	Pheasant
Smoked Ham	Grouse
Quail	Lamb
Squab	Chicken
Rabbit	

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FISH

Trout	Sole
Smelt	Blue Fish
Halibut	Lobster
Yellow Tail	Clams
Croppie	Crabs
White Fish	

SOUPS

Clear Tomato	Oxtail
Clear Celery	Mock Turtle
Clear Chicken	Consomme
Clam Nectar	Vegetable Bouillon
Clam Broth	

VEGETABLES

Cauliflower	Lima Beans
Celery	Artichokes
Cucumbers	Asparagus
Green Corn	Tomatoes (fresh, or canned)
Carrots	Green Onions
Potatoes (white and sweet)	Dried Onions
Squash	Red Cabbage
Spinach	White Cabbage
Dandelion Greens	Savoy Cabbage
Beet Greens	Beets
Turnip Greens	Radishes

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Swiss Chard
String Beans
Okra

Turnips
Mushrooms
Irish Moss

CEREALS

Cornflakes
Wheat Flakes
Shredded Wheat
Biscuit
Puffed Rice
Cream of Wheat

Oatmeal
Indian Meal
Triscuits
Grapenuts
Steamed Rice
Pop Corn

BREADSTUFFS

Wholewheat Bread
Corn Bread
Rye Bread
Baking Powder
Biscuits

Zweibach
Soda Crackers
Oyster Crackers
Ginger Snaps

SWEETS

Raw Sugar
Maple Sugar
Honey

Maple Syrup
Corn Syrup

FRUITS

Avacados
Lemons
Limes
Oranges

Strawberries
Watermellon
Persian Mellon
Cantaloupe

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Grapefruit	Muskmellon
Pineapple	Nectarines
Pears	Apricots
Apples	Quince
Plums	Cherries
Grapes	Dates
Raspberries	Figs
Blackberries	Prunes
Huckleberries	

NUTS

Salted Almonds

DAIRY PRODUCTS

Skim Milk	Limburger Cheese
Roquefort Cheese	Butter

BEVERAGES

Tea (with lemon)
Fruit drinks of all sorts
Black Coffee

DESSERTS

Pound Cake	Snow Pudding
Fruit Cake	Blanc Mange
Rice Tapioca	Sherbet
Sago	Custard
Rice Pudding	Stewed Fruits

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SAUCES AND CONDIMENTS

Green Olives

Keep the calory intake at 2,500 daily.

Note: The true protein type should live largely on fruits and vegetables; light carbons are permitted because they are readily burned in the tissues, and provide an abundance of energy without producing too much protein. Protein types should use plenty of water and watery foods.

Daily exercise is a prime factor and should be indulged in regularly, long enough to produce profound perspiration.

PART THREE

Chapter 4

Glandular Obesity

Glandular obesity is pathological, and its treatment belongs within the realm of skilled practice. It is usually conceded that the thyroid and pituitary glands are at fault in the majority of cases. Diagnosis is not the simplest thing in the world by any means, and no corrective treatment should be undertaken without expert supervision and care. Much can be done by the individual to prevent gland breakdown and provide against obesity of this sort by careful attention to the diet. Foods rich in mineral salts and vitamins are always indicated and should be incorporated liberally in the diet as a protective measure.

PART THREE

Chapter 5

Weight Scales

MEN (Average Build)

Symmetrical Development. Clothing considered.

Height	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
5'	112	118	124	127	129	133	134	135	136
5' 1"	115	120	125	130	134	135	136	138	139
5' 2"	118	125	128	132	133	137	138	139	140
5' 3"	120	126	131	135	136	139	141	142	143
5' 4"	125	130	135	137	139	142	143	144	146
5' 5"	129	136	138	142	145	146	148	149	150
5' 6"	132	139	142	146	148	149	150	152	153
5' 7"	137	142	146	149	152	154	156	157	158
5' 8"	140	146	150	154	157	159	161	162	163
5' 9"	145	151	155	157	159	162	164	166	167
5' 10"	149	155	158	160	163	167	169	171	172
5' 11"	153	158	163	168	172	175	177	178	179
6'	158	163	169	174	178	181	183	184	185
6' 1"	163	168	176	180	184	188	189	190	192
6' 2"	168	174	181	186	190	194	197	198	199

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MEN

Nerve and Ligament Types—(slight build), narrow shoulders, shallow chest, small bone. Clothing considered.

Height	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
5'	105	109	114	117	119	121	123	126	127
5' 1"	108	115	120	124	126	129	131	132	133
5' 2"	113	119	123	126	128	131	133	134	135
5' 3"	116	122	126	129	131	134	136	137	138
5' 4"	119	126	129	131	134	136	138	139	140
5' 5"	122	129	131	134	137	139	141	142	143
5' 6"	127	134	137	140	142	144	146	147	148
5' 7"	130	136	140	143	146	148	150	151	152
5' 8"	135	141	145	149	151	153	155	156	157
5' 9"	139	145	149	153	157	159	161	162	163
5' 10"	142	147	153	158	162	165	167	168	169
5' 11"	147	153	157	160	163	166	168	169	170
6'	152	157	163	168	170	172	174	175	176
6' 1"	157	162	169	174	176	178	180	181	182
6' 2"	162	168	173	178	181	183	185	186	187

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MEN

Large Bone—Deep, wide bodies—Thoracic Type—Protein Type, Digestive Type. Clothing considered.

Height	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
5'	118	122	127	131	134	137	139	140	141
5' 1"	120	126	130	134	136	139	143	144	145
5' 2"	123	129	134	138	140	143	145	147	148
5' 3"	126	132	137	140	143	146	148	149	150
5' 4"	129	136	139	141	145	148	150	151	152
5' 5"	132	138	141	144	147	150	152	154	155
5' 6"	137	144	147	150	153	154	156	157	158
5' 7"	142	148	152	155	158	159	163	164	165
5' 8"	146	152	155	158	159	162	164	166	167
5' 9"	150	156	159	163	166	168	169	170	171
5' 10"	153	159	162	166	169	170	173	174	175
5' 11"	158	163	168	173	177	179	180	181	182
6'	163	168	174	179	182	184	185	186	188
6' 1"	168	173	180	185	188	191	193	194	195
6' 2"	173	178	186	190	195	198	200	201	202

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WOMEN (Average Build)

Symmetrical Development. Clothing Considered.

Height	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
5'	115	118	120	125	128	130	133	134
5' 1"	117	120	123	127	130	133	135	137
5' 2"	120	122	125	129	133	136	138	140
5' 3"	123	125	128	132	136	139	141	143
5' 4"	125	128	132	136	139	142	144	145
5' 5"	129	132	136	140	143	145	147	150
5' 6"	132	135	139	143	145	147	149	152
5' 7"	136	139	142	146	149	152	155	157
5' 8"	140	143	147	151	154	158	161	162
5' 9"	145	148	152	156	159	163	165	166
5' 10"	149	152	155	159	162	166	169	172
5' 11"	153	155	158	162	166	170	174	176
6'	156	158	161	164	168	172	176	180

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WOMEN

Nerve and Ligament Type—(slight build)—small bones, fine texture—narrow shoulders and hips—shallow body. Clothing considered.

Height	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
5'	110	113	116	119	123	126	128	129
5' 1"	112	115	118	121	125	128	130	132
5' 2"	115	117	120	124	128	131	133	135
5' 3"	118	120	125	129	133	136	138	140
5' 4"	121	124	127	131	135	138	140	142
5' 5"	124	128	132	136	139	141	143	145
5' 6"	127	130	134	138	141	145	147	148
5' 7"	132	135	139	143	146	149	151	152
5' 8"	135	138	142	146	149	153	155	156
5' 9"	140	143	148	151	154	157	160	161
5' 10"	145	148	152	156	159	163	165	166

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WOMEN

Large Bone—deep, wide body—Thoracic, Protein and Digestive Types. Indoor clothing considered.

Height	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60
5'	120	123	126	129	133	136	138	140
5' 1"	122	125	128	131	135	138	140	142
5' 2"	125	127	130	134	138	141	144	145
5' 3"	128	130	134	138	141	143	145	147
5' 4"	131	134	137	141	143	146	148	150
5' 5"	134	138	142	146	149	151	152	153
5' 6"	138	141	145	149	151	155	156	157
5' 7"	142	145	149	153	156	158	160	161
5' 8"	145	147	151	154	158	162	164	165
5' 9"	150	153	157	161	163	167	169	170
5' 10"	154	157	160	164	167	171	175	176
5' 11"	158	160	163	167	170	174	178	179
6'	162	164	166	169	174	178	180	182

PART THREE

Chapter 6

Disease in the Making

Profit and loss—the eternal song of modern business—may well be the song of life. Every transaction affects the balance. It shifts back and forth. Today we may show a profit—tomorrow a loss. The balance between health and disease changes hourly. Every hour of work, every hour of play or sleep leaves the balance at a different point. Every meal provides for gain or loss. We are never quite the same at the end of each day. Just why this is so should be apparent to anyone who will stop long enough to give it a thought. Work of any sort dissipates energy and creates breakdown material. If the energy intake is less than the energy dissipation, it follows that the reserve is tapped and we have less potential working capital as the result of the transaction. If the breakdown piles up faster than it can be moved, congestion at the point of formation will follow. Congestion

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always means a general slowing up and the possibility of reabsorption. Used material is not an asset to the body, it is a liability.

Sleep provides an opportunity for clearance; therefore, the necessity of sound sleep over a period of six to eight hours in adults and ten to fourteen hours in growing children. The rest is not the important thing, it is secondary to the cleansing and rebuilding process which complete relaxation provides. Insufficient sleep may easily result in toxic accumulation.

It is our habit to think of disease as something OUTSIDE of ourselves; something which strikes like a "bolt out of the blue," with sudden, appalling effect. As a matter of fact, nothing can be further from the truth. With very few exceptions, disease develops within the body as a result of two very common conditions: auto-intoxication and acidoses.

PART THREE

Chapter 7

Auto-Intoxication

Auto-intoxication is simply another name for self-poisoning. Normal people do not deliberately set about systematically poisoning themselves. Most of us do it because we are either indifferent to, or ignorant of, the process by which we are poisoned.

Improper food selection and preparation, infrequent bathing, lack of sleep, insufficient exercise, and careless, indifferent habits are the most common factors contributing to auto-intoxication. This being true, the whole problem boomerangs back of the individual. All such habits are directly under the control of the individual. They can be corrected. Surely the business of living is important enough to warrant some real study. None of us under normal conditions seem anxious to go out of business; therefore, we must find something worthwhile in the game. Why not assume the

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responsibility of intelligent living, and build a few habits of the right sort. It is no more difficult to practice sane habits than it is to perpetuate indifferent ones.

Constipation is the direct result of indifferent dietetic habits. It is not a disease in and of itself, but it is a paramount factor in disease development. The real nature of constipation can be appreciated if we think of it as a sluggish food movement through the small intestine. **INTESTINAL ACTIVITY IS THE RESULT OF CHEMICAL AND MECHANICAL STIMULATION. IT IS IMPORTANT THAT BOTH BE PROVIDED. BILE, WHICH IS CARRIED FROM THE GALL BLADDER DIRECT TO THE SMALL INTESTINE, ACTS AS AN ASTRINGENT OR CHEMICAL STIMULANT. FOOD BULK, OR FIBER, PROVIDES THE MECHANICAL STIMULANT.** Lack of bile salts, plus insufficient bulk or fiber, will create and perpetuate constipation.

It is difficult to establish a general rule that will apply in every instance, but perhaps we can more clearly visualize the speed at which food should move through the digestive tract by the

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following explanation: Some foods are practically digested in the mouth, some are taken care of by the stomach, and still others digested while in the small intestine. It is true, also, that some foods require a greater length of time for digestion than others. These facts we have taken into consideration, but generally speaking, food should move along the alimentary canal rapidly enough so that at the end of the day, after the evening meal, not more than three meals occupy the tract. The first meal of the day should by this time have reached the descending or lower third of the colon. It should be ready for evacuation. The noon meal should be well within the first two-thirds of the colon and the evening meal should occupy the small intestine. Just before retiring, or approximately three hours after the evening meal, the lower colon should be evacuated so that the oncoming noon meal may arrive at that point on time. Immediately upon arising, the lower bowel should be again cleared to provide accommodation for the last meal of the previous day. Immediately after the noon meal another evacuation should take place so that three complete evacuations are provided every twenty-four

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hours. While the above procedure may seem slightly radical to some, it is well to remember that internal cleanliness is just as vital to health as external cleanliness, even more so. We have never known a single case of chronic intestinal distress when the above three-a-day habit has been acquired. We have known many distressing cases where the one-a-day or two-a-day habit is the rule. We respectfully suggest that a wise, safety-first procedure is to acquire the **THREE-A-DAY HABIT**. It is a wonderful preventive against auto-intoxication and its distressing symptoms.

YOU WILL NOTE THAT WE SPEAK OF IT AS A HABIT. IT REALLY IS A HABIT AND CAN READILY BE ACQUIRED BY THE AVERAGE INDIVIDUAL. A DETERMINATION TO DELIBERATELY FOLLOW THROUGH UNTIL THE HABIT IS DEFINITELY FORMED, IS THE ESSENTIAL FACTOR.

A one-a-day schedule does not provide for a thorough cleansing, and anything less than one a day is decidedly harmful. Food must move along the tract on time. If it fails to do so, the

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mechanical reflex is weakened; the response to food pressure is sluggish and indifferent. A STAGNANT FOOD BOLUS CANNOT REMAIN FREE FROM DECOMPOSITION FOR ANY LENGTH OF TIME. Common sense should tell us that decomposition of food stuff within the digestive tract is just as obnoxious as a like condition in the garbage can. Decaying food always throws off an unpleasant odor. Do you suppose that the decaying food within the body is any less offensive? Why should it be? Again, do you suppose that the unpleasant odor coming from a garbage can is actually an obnoxious gas, created as a result of decomposition? Surely it is. Then, why not apply the same reason to decaying food within the alimentary tract? A stagnant food bolus, regardless of its location, whether it is in the stomach, small, or large intestine, creates gas and that gas must be liberated from the body or be absorbed by it.

Nature provides for a certain amount of relief through natural channels, but there are reasonable limits to all things. If the tract is decidedly healthy, and the various chemicals provided by nature for the counteraction of toxic gases in

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this tract are abundantly supplied, it is possible that the gas may be reduced and rendered harmless, but how very few of us are fortunate enough to have a thoroughly healthy digestive apparatus? If the gas is not released, or reduced, there is only one answer, its own pressure will drive it through and between the cells of the tissue immediately adjacent to it. To visualize it more practically: You have seen smoke forcing through the boards of a burning house; you have seen it penetrating cloth, and even more dense material; by the same process this obnoxious toxic gas drives through the body. We need no technical training to appreciate that such a saturation is decidedly harmful. THOUSANDS OF TOXIC HEADACHES CAN BE DIRECTLY TRACED TO GAS GENERATED WITHIN THE ALIMENTARY CANAL AS A RESULT OF STAGNANT FOOD. Nor is this the only distressing effect. If the food remains stagnant within the small intestine over a period of time, and other food is introduced into the body, we eventually bring about a complete clogging of the tract. The walls become distended, movement practically ceases, the bile is prevented from flowing into

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the small intestine where it belongs, and often backs up through the pyloric end of the stomach into the fundus of that organ. When this condition maintains, we say we have a sick headache. In addition to the above, it is not difficult to understand that stagnant food gradually undergoing the process of decay, must contaminate the liquid with which it is saturated. These liquids are gradually absorbed from the bolus itself, and seep through the surrounding tissues, thus providing for a profound distribution of the very thing which should be eliminated from the body, or used by the body before it has time to become contaminated. A FEW HOURS OVERTIME IS ALL THAT IS NECESSARY TO START THIS POISONOUS PROCESS ON ITS WAY THROUGH THE TISSUES. The body is forced to spend energy and substance to clear this poison from the system. Every source of elimination is forced to work overtime. The skin accepts the burden with characteristic good grace, and the material is often carried to the surface of the skin for evaporation. It is not always possible to bring about complete evaporation, and the skin begins then to assume an unsightly appearance. Erup-

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tions are noticed, the color is muddy and the surface odor offensive. The breath is foul and the mouth, well—simply tastes horrible, that is the only expression we can think of at the present moment. WHEN THE SKIN IS MUD-DY, COVERED WITH ERUPTIONS, THE BREATH FOUL, GAS AND ERUCTA-TION COMMON, YOU MAY DEPEND UPON IT THAT YOU ARE LAYING A VERY SOLID FOUNDATION FOR DIS-EASE. You are simply being poisoned from the small intestine.

What is true of the small intestine may also be true of the large intestine, or colon. It is not uncommon to find the stomach and small intes-tines active and the colon sluggish. When the food reaches the colon, especially the lower third, and is ready to be moved from the body, it should be evacuated at the first warning, but such a warning is very often secondary to some social obligation, some business urge, or out-and-out laziness, and it passes unheeded. The warning may be given a second and even a third time and still remain ignored. Finally the warn-ing ceases and we go about our social or business activity, little dreaming that we have deliber-

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ately provided for gas and liquid poison within the lower part of the alimentary canal. A few hours after the first warning, another cargo of refuse arrives in the lower colon but cannot reach the sphincter, and, therefore, does not make its presence known. It simply crowds as far down as possible, and remains there to give up toxic gases and liquids to the surrounding tissues.

We usually speak of this condition as COSTIVENESS. It is characterized by dry, hard fecal matter, difficult of evacuation. When we find ourselves in this condition many of us attempt by sheer mechanical effort to force the material from the tract, and then complain because we have developed hemorrhoids, or piles as they are commonly called. If a stress of circumstances brings on a condition of this sort it is wisdom not to attempt a normal evacuation, but to resort to the use of an enema. The water should be released immediately upon the introduction of the point past the first sphincter, so that the material is loosened and broken up from its lowest point. If necessary to entirely clean the tract, use at least three quarts of water to cover the complete ritual, retaining as much of

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it as possible at each attempt. Wash the colon clear so that nothing but the water leaves the bowels. IT IS A FOOLISH HABIT, HOWEVER, TO DELIBERATELY DELAY OR DISREGARD THE CALL OF NATURE, ASSUMING TO ARTIFICIALLY CLEANSE THE BOWEL WHEN WE HAVE AN OPPORTUNITY TO DO SO. The longer the food remains in the lower colon, the more opportunity is provided for the development of countless organisms which infest this part of the tract. Constipation and costiveness are two of the most common factors concerned with the problem of disease development.

Constipation is usually the result of improper food selection and preparation and the preparation is just as important as the selection.

Costiveness in nine cases out of ten is the direct result of indifference to the demands of nature. A HIGHLY TOXIC BODY IS THE BEST TARGET IN THE WORLD FOR DISEASE. RESISTANCE IS LOWERED, THE ORGANS OF ELIMINATION ARE OVERWORKED AND THE BODY IS FILLED WITH FERTILE GROUND IN WHICH MOST ANY FORM OF GERM

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LIFE MAY FIND A VERY PROFITABLE LIVING. To prevent auto-intoxication, select foods rich in the mineral salts, especially chlorin and magnesium. A complete list of these foods is provided at a different point in this volume. Foods rich in protein and carbon values should be largely discontinued. Generally speaking, a diet of fruits, and vegetables augmented by a few nuts and a reasonable amount of the lighter dairy products will suffice to clear up a condition of constipation.

Costiveness can be corrected more readily than otherwise by a conscious effort on your part to form the three-a-day habit. Costiveness is nearly always the result of indifference to the call of nature. It has been called to our attention that frequently a case is encountered wherein it is seemingly difficult to acquire the three-a-day habit, or even a one-a-day habit. Investigation has always disclosed a prolapsed condition of the transverse colon, and invariably a history of the case shows habitual internal bathing. These cases usually develop as we have cited; some inconsequential incident has prevented a normal evacuation and the habit multiplies upon itself until the patient resorts to a daily

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internal bath. It is not our purpose to discourage internal bathing when necessary, but we cannot be too frank in saying that it is better to use it when necessary than it is to make a habit of using it to simply protect ourselves against the ill effect of our conscious disregard for natural living. If a volume of water is habitually forced backward through the descending colon, across the transverse colon, and down the ascending colon, it naturally follows that the tissues are distended to the limit to accommodate the volume of water. While the presence of the water gives rise to certain motion within the colon, its tendency is to weaken the positive peristalsis and reduce the reflex response which is characteristic of normal colon activity. The walls of the canal lose their tone, and positive, elastic reaction, and become devitalized as a result of insufficient normal activity. A prolapsed colon is a difficult thing to correct, and even if we resort to surgical interference, by which the colon is again placed in normal position, we have not insured ourselves against further prolapses and inactivity, as surgical interference does not rebuild the wall, nor bring about normal activity as related to the muscles of the wall itself. It

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is a mechanical help, because it corrects a possible double action of lifting the food up two stretches of the colon instead of one. In conclusion it may be well to say that costiveness is a thing to be ashamed of. Its presence simply announces that we are decidedly careless and indifferent to this very important aspect of the business of living.

PART THREE

Chapter 8

Acidosis

A second important factor concerned with disease development may be discussed under the general heading of Acidosis.

The term is used to express a condition of "relative acidity in body tissues." It does not mean "acid blood," as many laymen assume; if the blood were to become acid even to a slight degree, death would follow.

Normal reaction should be alkaline, which is directly opposite to acid.

Health demands what is known as an "alkaline reserve;" meaning that the whole body structure, including the liquids, should show a predominance of alkaline reaction.

A lack of alkaline balance may manifest itself in the tissues, as well as the liquids. To illustrate the point, every time a muscle is used, acids are formed by the breakdown material; these, under normal conditions, are removed from the

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tissues in which they are formed to the bladder and other organs of elimination, including the skin. From these points they are thrown from the body. Occasionally the acids are not moved rapidly enough, with the result that the muscle will cramp and refuse to function. A short rest and a vigorous massage will usually drain the muscle and restore its usefulness.

It can be seen that the body may accumulate a relative degree of acidity through the failure of these sources of elimination. The danger, however, is not paramount, as the body is protected chemically and otherwise against such a contingency.

The most common source of acidosis is related to our dietetic habits, and the frequency with which this condition is found justifies our contention that our indifferent habits are almost universal. To clarify this point, permit us to review a typical experience:

In a recent class, composed of business men and women, ranging in age from twenty-five to forty-eight years, thirty-six out of fifty complained of the following symptoms: heartburn, eructations, belching, gas, frontal headaches, sour stomach, having a sensation which was

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described by them as "feeling raw inside."

Twenty-eight of the number were very sensitive to pressure just under the ribs, at the center line of the body.

In the majority of cases, these symptoms appeared immediately after eating, or within a period of two hours after the meal. In a number of cases, the condition had maintained over a period of months, in a few instances over a period of years, and in others over a period of weeks. Of course, there were different degrees of severity as well.

This particular class was composed of office workers—stenographers, bookkeepers, accountants, etc.—and they worked under very favorable conditions as far as light, air, and hours were concerned. The company had provided every convenience in the matter of office equipment. Generally speaking, they were contented and happy in their work. They were well paid and represented a high type of office workers.

With these facts in mind, we were just a little surprised to find the condition so universal. We had encountered much the same situation in practically every class conducted over a period

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of eighteen months, in various parts of the country, but never had we found such a majority suffering from super acidity.

Investigation disclosed that a greater per cent of the workers ate at least two meals downtown and one at home. They favored a drugstore in the immediate neighborhood, and a quick lunch stand on the first floor of the building in which their office was located.

Without disclosing our intent, we set about checking their dietetic habits with the following result:

Breakfast usually consisted of coffee and rolls; Coca Cola and pie, or coffee and some prepared cereal with cream and sugar.

The popular luncheon dishes were: Toasted sandwiches made from white bread, cheese, ham, barbecued beef or pork, or a combination hot plate made up of a slice of meat with two slices of white bread, some mashed potatoes and plenty of gravy. Malted milk, coffee and Coca Cola were the favored drinks. Pie was selected by the majority as a conclusion to the meal, and very often a second cup of coffee was included.

Upon inquiry, we found the following foods to be the most popular as far as the evening

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meal was concerned: Fried meat, including pork, veal, steak, or sausage; mashed or fried potatoes; milk or natural gravy; white bread; canned or green peas served creamed—with creamed cauliflower running the second choice; macaroni and cheese, spaghetti and tomato sauce appeared quite frequently in the lists. In ninety per cent of the cases a dessert was used, pie and cake being the favorites. With these facts at our disposal, it was not difficult to establish a reason for the condition.

As an interesting note—a ninety-five per cent correction was established among this group in less than thirty days after we had persuaded the drugstore and the quick lunch stand to vary the menus and provide a different class of foods. This group of office workers, either through ignorance, or indifference, were living largely upon foods which produce acid, or tend to diminish the alkaline reserve in the body. While we are not inclined to say that the diet of most business men and women who eat downtown is parallel in its one-sidedness with the diet used by this particular group, we respectfully submit that we found the following conditions prevalent in a number of large cities throughout

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America. After careful checking in lunchrooms, soda fountains, and restaurants frequented by office workers, we found the following menus to be almost standard.

BREAKFAST

Coffee with cream and sugar.

Hot cakes—butter and syrup.

* * * * *

Coffee, with cream and sugar.

Sweet rolls, or doughnuts. Butter.

Stewed, sweetened prunes.

* * * * *

Coffee, with cream and sugar.

Buttered Toast.

Cornflakes, cream and sugar.

* * * * *

Coffee, with cream and sugar.

Waffles, with sausage or bacon, butter, and syrup.

* * * * *

Coffee, with cream and sugar.

Fried bacon and eggs.

Buttered Toast.

Fried Potatoes.

* * * * *

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Coffee, with cream and sugar.
Stewed prunes.
Fried ham and eggs.
Fried Potatoes. Toast—and more coffee.

The favorite lunches were the following:
Coffee, with cream and sugar.
Hot roast beef, or pork, gravy.
White bread.
Mashed Potatoes.
Pie.

* * * * *

Coffee, with cream and sugar.
Three decker sandwiches, composed of various combinations, including tomatoes, lettuce, mayonnaise, chicken, bacon, pork, barbecued beef, melted cheese, buttered Toast.
Pie or Ice Cream.

* * * * *

Malted Milk.
Swiss Cheese sandwiches (mayonnaise and lettuce).
Pie.

* * * * *

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Coca Cola.

Ham sandwich (white bread).

Pie.

* * * * *

Coffee, with cream and sugar.

Fruit salad (canned fruit).

Tuna Fish sandwich (white bread, mayonnaise and lettuce).

Pie.

* * * * *

Coffee, with cream and sugar.

Pork and beans.

Brown bread.

Pie.

We have every reason to believe that the average American home provides an evening meal almost identical with the popular list of foods indicated at a previous point in this chapter. Our investigation verifies this contention, and we have no reason to believe that any radical departures are common.

In addition to the one-sided dietetic habits at meal times, we, as a nation, are the champion sweet nibblers of the world. It is estimated that during this year we will consume eight hundred thousand tons (800,000) of candy. This means

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that every month of the year we will eat sixty-six thousand, six hundred and sixty-seven tons (66,667) of candy. We nibble it at the rate of two thousand, one hundred and ninety-two tons (2,192) a day; ninety-one tons (91) an hour and one and one-half tons ($1\frac{1}{2}$) every minute, day or night. These figures are difficult to grasp. They are even more difficult when we reduce them to pounds. Our yearly consumption in pounds amounts to one billion, six hundred million (1,600,000,000). One hundred and thirty-three million, three hundred and thirty-three thousand, three hundred and thirty-three (133,333,333) pounds per month. Four million, three hundred and eighty-three thousand, five hundred and sixty-two (4,383,562) pounds per day. One hundred and eighty-six thousand, six hundred and forty-nine (186,649) pounds per hour. Three thousand, four hundred and ten (3,410) pounds per minute, or fifty-seven (57) pounds per second.

This simply means that two thousand, eight hundred and fifty (2,850) people are nibbling on candy every tick of the clock, day and night.

The total cost of this in-between-meal habit amounts to more than one thousand million dol-

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lars every year. It cannot be assumed that American children are the only offenders in this respect. It is a common practice to nibble sweets between meals in practically every business office from border to border, and from coast to coast.

It is not our purpose to in any way discredit the energy value of pure candies. We do, however, suggest that this candy eating habit of ours may be a contributing factor to the increase of sugar diabetes in this country. The study of preliminary census returns from twenty-one states and Hawaii for 1928 showed that the number of diabetes deaths had increased from 6,093 in 1927 to 6,808. Nor was this increase confined to a single state. Nineteen states out of a total number of twenty-one showed an increase.

It is reasonable to assume that an increased death rate would also indicate an increased spread of the disease. With our candy consumption at the above startling figures, and our extravagant use of sugars as well, it is not difficult to understand why diabetes should increase. That, however, is not the only factor to be considered.

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Sweets are acid producing unless they are immediately turned into energy. Our one-sided dietetic habits do not provide for the oxidization of these sugars and sweets. A comparatively small per cent of the total energy value is transformed into vitality, the balance remains as an acid producing factor.

This, however, is not all of the story: There remains for our consideration the startling fact that last year we consumed, as a Nation, a total of three hundred and forty-eight million (348,000,000) gallons of ice cream. Few of us think of ice cream in terms of gallons and perhaps our appreciation of this total amount will be greater if expressed in quarts, so for your convenience we submit the fact that last year we consumed one billion, three hundred and ninety-two million (1,392,000,000) quarts of ice cream. We dish it out at the rate of one hundred and sixteen million (116,000,000) quarts per month; three million, eight hundred and thirteen thousand, and seven hundred (3,813,700) quarts a day, or one hundred and fifty-eight thousand, nine hundred and four (158,904) quarts an hour; two thousand, six hundred and forty-eight (2,648) quarts a minute, or

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forty-four (44) quarts a second. If we divided the entire population of the Nation into groups of 8,448 individuals, and worked each shift one second, we would find the total figure for the year consumed over that period of time. In other words, about 8,448 individuals are putting a spoonful of ice cream into their mouths every time the clock ticks. We hesitate to enlarge upon these figures, or make them appear any greater than they are, but it would be totally unfair to overlook the fact that millions of quarts of ice cream are served as soda fountain concoctions composed of heavy syrups, highly sweetened preserved fruits, and other garnish. As a factor contributing to the universal acid condition of the Nation, our ice cream consumption is certainly deserving of second place. What we have said of candy, we wish to repeat of ice cream. Our intent is not to depreciate pure ice cream as a valuable food. It is suggested, however, that the above ice cream is not the old-fashioned article originally made up of cream and a little simple flavoring. It is true, too, that the candies we consume are not as simple in their composition as we would like them to be. In a number of samples recently analyzed by Government

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Research Departments, it was found that the samples under consideration were from forty-four per cent to sixty-six per cent starch and flour. The very fact that they were not pure candies, but were made up largely of starch and flour does not alter their acid reaction, as both starch and flour are acid producing.

While our pure food laws sanction the use of glucose in the manufacture of ice cream, we question its value, especially in this form, as a constructive food factor.

The danger of the ice cream and candy habit is augmented by another universal condition that assumes alarming proportions, especially if considered as a foundation for disease.

According to figures provided by the United States Department of Commerce in the Year Book for 1928, registered factories in the United States manufactured for domestic use only, one hundred and five billion, nine hundred and twenty-seven million (105,927,000,000) cigarettes. Uncle Sam surely gets a "long smoke." If these cigarettes were all placed end to end, it would make a single file of cigarettes four million, six hundred and five thousand (4,605,000) miles long. This figure is almost too large for

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average conception, but we are wondering just how, or who, would light one end of this cigarette while we smoke the other. If this long cigarette were lighted and no draft were used to increase its rate of burning, it would keep smoking for four million, eighty-six thousand, six hundred and ninety years (4,086,690). We hesitate to say how much smoke would be created if all the cigarettes were stacked in a pile and set on fire at once. We have a vague idea that it would make the burning of Rome look like a back-yard bonfire.

As the cigarettes are smoked one at a time, two trillion, six hundred and forty-eight billion, one hundred and seventy-five million (2,648,175,000,000) puffs of cigarette smoke are going into American lungs for this year. We are wondering just how much soot from the burning paper is going to deposit itself in the lungs of these smokers. We are wondering just how much of the tobacco coal tar created by the burning of the tobacco and the paper is going to be absorbed by the mouth glands, and directly introduced into the system, and we are wondering, as well, just how much nicotine will be absorbed. Certainly, it cannot be said that this

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habit, extreme as it is, is a contributing factor to the health of this Nation.

As we see the problem, there is a very definite and universal need of some common sense restraint. It is typically American to be extreme. When we drink liquor we want hard liquor, and plenty of it. When we eat candy we want rich candy and plenty of it. When we smoke, we want good tobacco, and plenty of it. We are never satisfied with methods and habits that anywhere near approach a sensible margin of safety. Our only sense of values is associated with the commercial angle. We commercialize life and health just as readily as we commercialize tin cans or concrete.

The business of living, like practically every other business in America today, requires a steady hand and a tight rein upon extravagance. Unless we are content to select our food on a sane basis and consume it with a degree of moderation, we are going to find that, as a Nation, our individual health is far below the demands of modern times. Disease, we repeat, does not appear suddenly; it is developed over a period of time within the body itself. Our indifference to this particular phase of the busi-

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ness of living is laying a foundation for disease in ninety-nine homes out of every hundred. It is high time that we set about a very definite program of common sense adjustment. Auto-intoxication and acidosis are two factors in the development of disease. A third factor is discussed under the caption of UNDER-NOURISHMENT.

PART THREE

Chapter 9

Disease in the Making Under-Nourishment

Mal-nutrition is not a disease, in and of itself. Like auto-intoxication and acidosis, it is "disease in the making." It is the forerunner of a thousand minor ailments, and a hundred major ones. That it is a contributing factor to disease development has been, and is a well-known fact. That it is altogether too prevalent is equally apparent. It is our habit to usually associate the term "mal-nutrition" with poverty, starvation and famine. Such an association is not possible in America, for mal-nutrition is not confined to a single class or age. It is found in private schools, public schools, rich homes, and poor homes. It is found wherever children are found.

The United States Board of Education, in a recent report, estimated that more than four million under-nourished children are in attendance at our public schools. These figures are

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compiled as a result of a National school survey. No mention is made of the thousands of cases below school age, and we have every reason to believe by carefully checking the reports of various welfare societies, that thousands of children below the school age are actually suffering from under-nourishment. Neither do the figures embody the thousands of adults who suffer from the same condition. The figure mentioned, large as it may seem, actually represents a small fraction of the number of cases to be found within our borders. This shameful state of affairs has been called our "greatest National liability," If it could be traced to famine, actual want through unemployment, or a National crisis of unpreventable character, we could perhaps look upon it with a more kindly eye, and wholeheartedly deplore it; as it is, we can only be ashamed of it, it is so utterly unnecessary.

Our National pride shudders when we remember that we are the wealthiest Nation in the world and have easy access to an abundance of quality food of every description, and yet we are starving more than four million children of school age, to say nothing of those of prior school age and those who have left school. We

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refuse to believe that we are either stupid or careless. We are compelled to admit that we are either indifferent or ignorant. Nor are we going to solve the problem by dodging it. It is your problem, and my problem. We are all, as individuals, equally responsible. We can only wash our hands clean again by facing the thing squarely with an abundance of common sense. If we are to again regain our self respect, we must solve this problem. Let us see what can be done about it.

First of all, mal-nutrition in America is not a problem of dollars and cents. We spend annually something like twenty-two billion dollars to feed the Nation. We are losing fifteen billions every year as a result of illness. The margin between these two figures is altogether too close and it is very evident that we are spending much of the twenty-two billion to generate and produce disease in our homes, rather than otherwise. We spend the money, consequently must have it to spend. There is no shortage of good food. We cannot understand how the condition can be remedied, either by lowering the price of the food, or increasing the quantity. Actually, they do not enter into the problem. It is not an

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economical problem at all; it is much more simple, and much more personal. Mal-nutrition begins in the kitchen, and of necessity must be conquered there. Consequently, the responsibility rests with American mothers, and although we have no desire to be arbitrary in the matter, we cannot withhold an opinion that perhaps too many of our mothers have lost their sense of proportion. Altogether too often we hear mothers of families speak of their doing little or no cooking at home, as if it were a real worthwhile achievement. They perhaps do not realize it—we fervently hope that this attitude is not a deliberate one, but the fact remains that they are crowding their families out of the home and away from wholesome food into cafes and restaurants, where food preparation is not a science but, rather, a commercial enterprise.

American womanhood may not disregard their natural place in the home and successfully contribute their part to American health, or to the welfare of the Nation at large. It is difficult to understand why women are so eager to get away from their natural home duties and get into something outside of the home. There is no greater achievement of which American wom-

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anhood is capable than the scientific direction and management of home. Home duties are not monotonous and menial, only insofar as they are considered so by women who do not understand their importance or economical value. When cocktails, bridge games, cigarettes, and "Whoopee" parties take precedence over the simple tasks of providing clean, wholesome food, and clean, wholesome homes for Americans, then it is high time that this Nation prepares for a crisis far more extensive than anything we have yet had to face.

This hideous crime of mal-nutrition is an unwholesome stain on our National reputation. American women can do more to solve it than all the doctors and trained health experts in the world; in fact, it will not be solved until they shoulder the responsibility and discharge the obligation intelligently. This may seem brutally frank, but we are offering no apologies—the condition exists as can be readily proven by anyone sufficiently interested to spend the time and money to find out. Mal-nutrition is almost entirely a problem in vitamin and mineral starvation.

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Natural food provides for every body need. Locked within the tiny food cells, we find an abundance of energy. We find the very things out of which the living body tissues are made. We find the actual chemicals which work within the body to transform the energy into vitality, and the building material into actual living tissue. While it is important that we capture sufficient potential energy, it is even more important that we preserve the minerals and the vitamins, for these food properties actually repair, build, and sustain the body in a state of health. They make possible the capture of energy. Without them, successful living is an impossibility.

Minerals and vitamins do not compose the greater bulk of food. They comprise but a very small fraction of its total weight, or bulk. To assist in clarifying the proportions in which these properties appear, we present the following tables. These tables have considered only the edible portion of foods and are classified under their proper headings:

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VEGETABLES

(fresh)

Mineral Content

Artichokes	1. %	Turnip Greens....	2.2%
Asparagus	.7	Leeks	.7
Beans (Lima)....	1.7	Lettuce	.9
Beans (string)....	.9	Mushrooms	1.2
Beets	1.1	Okra	.6
Cabbage	1.	Onions	.6
Carrots	1.	Parsnips	1.4
Cauliflower	.7	Green Peas.....	1.
Celery	1.	Potatoes	1.
Green Corn.....	.7	Sweet Potatoes....	1.
Beet Greens.....	1.7	Pumpkin	.6
Dandelion	4.6	Rhubarb	.7
Rutabagas	1.1	Spinach	2.1
Squash	.8	Spinach (canned)..	1.4
Tomatoes	.5	Turnips	.6
Average (approximate).....		1.14%	

VEGETABLES
(fresh or raw)
Water Content (%)

Artichokes	79.5	Lettuce	94.7
Asparagus	94.	Mushrooms	88.1
Beans (string).....	89.	Okra	78.9
Beets	87.5	Onions	87.6
Cabbage	91.5	Parsnips	83.
Carrots	88.2	Green Peas.....	74.6
Cauliflower	92.	Potatoes	78.3
Celery	94.5	Sweet Potatoes.....	69.
Green Corn.....	75.4	Pumpkin	93.
Cucumbers	95.	Rhubarb	94.
Egg Plant.....	92.9	Rutabagas	88.9
Beet Greens.....	89.5	Spinach	92.
Dandelion Greens ...	81.4	Squash	78.
Turnip Greens	86.7	Tomatoes	94.3
Leeks	78.	Turnips	89.6
Average (approximate).....		86.5%	

FRUITS (fresh)
Water Content (%)

Apples	84.6
Apricots	85.
Blackberries	86.3
Cherries	80.9
Cranberries	88.9
Figs	79.
Grapes	77.
Huckleberries	81.9
Lemons	89.3

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Oranges	86.9
Peaches	89.4
Pears	84.4
Pineapple	89.3
Plums	78.
Prunes	79.6
Raspberries	85.8
Strawberries	90.4
Average (approximate)	84.5

FRUITS (fresh)

Mineral Content (%)

Apples	.3
Apricots	.5
Blackberries	.4
Cherries	.6
Cranberries	.2
Figs	.6
Grapes	.4
Huckleberries	.3
Lemons	.5
Nectarines	.6
Orange	.5
Peaches	.4
Pears	.4
Pineapple	.3

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Plums	.5
Prunes	.6
Raspberries	.6
Strawberries	.6
Average (approximate)	.046

MEATS—Water Content (%)

Beef: Varies as to cut—condition (fat or lean)
—manner of feeding.

Meats are a concentrated source of protein,
of which 90% to 98% is digestible.

As a source of concentrated energy—more
than twice as much as carbohydrates and
other proteins.

Beef (Muscle):

31% to 73%

Neck	73.
Flank	31.
Ribs	73.

Parts:

Brain	80.6
Heart	62.6
Sweetbread	70.
Kidney	76.
Liver	71.
Tongue	51.

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Veal:

43% to 73%

Parts:

Heart73.

Liver73.

Kidney75.8

Lamb:

51% to 75%

Mutton:

29% to 61.9%

Pork:

25.1 (back) to 66.5 (tenderloin)

Parts:

Brain75.8

Kidney76.1

Heart75.6

Liver71.4

Poultry:

47% to 75%

Fish:

41% to 84%

It will be readily observed that all food stuffs are largely water, vegetables averaging more than 86%, fruits more than 84%, animal foods approximately 70%. It will be noticed, as well,

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that the mineral values comprise a much less percentage of the bulk; vegetables averaging 1.14%, fruits less than $\frac{1}{2}$ of 1%, while animal foods run about the same, perhaps a little higher in mineral content.

All foods then are actually semi-liquid compounds, although they may appear relatively solid. The natural purpose is, apparently, to provide for the easy release of the mineral values. They are held loosely in solution and are readily removed from the food bulk.

It would almost seem that our only conception of food preparation has been to increase its palatability and its appearance. To this end we have resorted to the universal use of artificial flavorings and condiments. We have actually attended dinners wherein the color scheme appeared more important than either the taste or value of the food. As a Nation, we have entirely lost our appreciation for natural food flavors. It is actually difficult at times to tell whether we are eating fish or fowl, the food is so artificially disguised and flavored.

When it comes to vegetables, the condition is even worse, in ninety-nine cases out of a hundred, when they finally arrive at our plate, they

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are anything but natural in appearance, or flavor.

It is fundamental that the student remember that the MINERALS ACTUALLY FLAVOR FOODS. When foods are prepared so that they are tasteless, unless artificially seasoned, you can make up your mind that they have been devitalized and robbed of the actual properties which prevent mal-nutrition. When they are prepared so that the flavor is rich and natural, you may be equally positive that the food is abundant in the very things that provide against mal-nutrition.

All foods should be prepared simply. Fine food preparation does not manifest itself in complex concoctions of mixed foods, seasonings, and dressings. The real artist provides the food rich in natural flavor and simple in combination.

A casual analysis of the above tables should impress the reader with the fact that no additional water is necessary for the preparation of food stuffs. There is plenty of natural, wholesome, purified water in every food provided for our use to protect it against burning or lack of heat distribution. Remember that these vital food values are not permanently locked within

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the cells of the food itself ; they are loosely suspended in the cells, and can be very easily washed from their original location.

Food is composed of a framework and a filler. The framework is composed of bulk or fiber, the filler is composed of the minerals and vitamins. The fiber is necessary as a mechanical factor in digestion ; the filler is necessary as the actual food value. When water is used for the purpose of cooking vegetables, fruits, or meats, and the temperature is raised to a boiling point and retained there for a sufficient length of time to cook the food, many of these values are actually washed from their original places and carried away from the food. The following extract is taken from the United States Department of Agriculture, Farmer's Bulletin No. 256:

“When vegetables are immersed in water, as in boiling, a greater or less loss of material is almost inevitable * * * *.

“In experiments carried on under the auspices of the Office Experiment Stations it was found that * * * * when potatoes were peeled and soaked for several hours before boiling, the loss in round numbers amounted to about 50 per

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cent of the nitrogenous material, and 40 per cent of the mineral matter present. Little starch was removed from the potatoes by the solvent action of water, but when peeled potatoes were boiled the amount of starch removed by abrasion was considerable, at times nearly 30 per cent of the total value of the potato."

"In the experiments with carrots it was found that the loss was greatest when the roots were cut into small pieces, amounting in this case to nearly 30 per cent of the total food material present. The sugar extracted when the carrots were boiled was equivalent to nearly a pound a bushel. When cabbage was boiled the amount of material extracted was found to be considerable, amounting to about one-third of the total food material present, the chief constituents extracted by the water being ash or mineral matter."

The figures given below were taken from "American Journal for the Diseases of Children," and show the loss of mineral ash in boiled vegetables:

Spinach	52%
Carrots	48%

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Asparagus	47%
Cabbage	41%

Other reports from the same source, as well as those from private investigators, verify these findings and in many instances prove them to be very conservative. It is safe to say that we are wasting at least one-third of the food we buy. This waste is represented in loss of mineral values, nitrogen (protein) values, starch and sugar (carbon) values, and, as well, the vitamin value. These properties are the very things which food has to contribute to health and vitality.

Unscientific food selection and preparation are jointly to blame for much of the annual economic loss of seven billions of dollars in food paid for and then thrown away. A great per cent of the fifteen billion we spend and lose as a result of illness, can be charged to their account. They are largely responsible for the fact that something over fifteen million children are not getting a chance to live in happiness and health. They are the father and mother of mal-nutrition, our greatest national liability.

Mal-nutrition stands foremost as a primary
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factor in disease development. It is the vanguard—the out-rider of a hundred diseases that are sapping the vitality of men, women, and children alike. Mal-nutrition very often, if not always, precedes tuberculosis, anemia, bone disease, and kindred other deepseated diseases that are altogether too prevalent.

Th best safeguard in the world against the development of disease, is to carefully select foods for their actual values, and to prepare them scientifically so that these values are not lost between the backdoor and the dining table.

It is encouraging to note that within the last few years, particularly, men of inventive trend have developed scientific cook-ware that amply provides for the conservation of these food values. It is equally encouraging to note that a great number of American mothers have taken a very keen interest in food education and preparation. It is hoped that their enthusiasm will prove to be a factor in further encouraging other mothers to interest themselves in scientific food preparation. We feel that we can safely leave the problem of disease development in the hands of American womanhood. They have played their part, and a very enviable one, in

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the progress of this Nation. That they will continue to play it with equal intelligence is an assumption that we believe to be wholly justifiable. The greatest immediate need is a concentrated, intelligent effort to spread common sense, health information, and especially that part which pertains to the selection and preparation of foods.

PART THREE

Chapter 10

Vitamins

The word vitamin has been coined to designate a certain food property or factor of definite functional value to the body. This property is related to the vital aspect of food capture and conservation.

VITAMINS DO NOT CONTRIBUTE ENERGY OR BUILDING MATERIAL. They occupy rather a unique position in the field of dietetics. It is our habit to speak of them as substances, but as yet no one has succeeded in isolating one in its pure form. For our purpose it will, perhaps, be more constructive to consider them as "vital factors or properties." Fresh, natural foods possess natural vitality as an essential characteristic, and when taken into the body under favorable circumstances, yield up that natural vitality to the tissues. We may learn to think of this vitality in terms of units, and eventually acquire the habit of expressing

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our conception of vitamins as "units of vitality" or "units of life."

VITAMINS ORIGINATE ONLY IN PLANT LIFE. They eventually appear in animal tissues as a result of their capture from the plant when used as food by the animal.

Investigators have thus far determined six typical reactions. Each reaction is identified by a letter, thus we have "A," "B," "C," "D," "E," "F," and "G." The discrepancy in number comes about because of later discoveries as related to vitamin "B." "B" is now spoken of as "B complex," by some; other authorities speak of it as "B.1" and "B.2," and still others as "F" and "G."

"A" is essential to growth in children; reproduction and lactation in adults. It protects against infections of the lungs, eyes, skin, and bladder; it provides against abscesses and pus formations in the ears and sinuses. If the diet is deficient in vitamin "A" resistance is lowered alarmingly. Children readily contract the characteristic diseases of childhood. Its importance as a regular part of the diet should be self-evident.

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The most common sources of "A" are milk, dairy products, eggs, cod liver oil, and green leafy vegetables.

Vitamin "B," for years considered as a single factor, now appears to be a complex composed of two separate and distinct vitamins. They have been designated as "B.1," and "B.2," and again as "F" and "G." It is possible that "B" will be discontinued in the near future, when agreement has been reached as to the names to be used.

"B" was known formerly as the Anti-Beri Beri vitamin, because of its influence in preventing and correcting this disease.

"F," or "B.1" does not resist heat and is destroyed largely, if not entirely, by ordinary cooking. It manifests a direct influence upon lactation in nursing mothers, and is essential in stimulating the flow of milk. It provides against inflammation of the nerves and consequent spastic paralysis. Its affect upon the weight, appetite, and general nerve health is marked. It retains the original "B" property as a protection against Beri Beri. Whole grains and milk are the most prolific sources of vitamin "F."

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"G" is a heat resisting vitamin within reasonable limits, and so far it has been discovered to exert a marked influence upon Pellagra, systemic weakness, and Diarrhea. This disease is now being listed as a "deficiency disease," a new conception which seems justified in view of recent experiments. The difficulty encountered in separating "F" and "G" has so far hampered the work of complete analysis. It is anticipated that this will be overcome shortly, and we may expect some interesting information before long.

The last word on vitamins has not been spoken. Green leaves have proven to be the most prolific source of vitamin "G." In listing the vitamin contents of foods under their separate headings, we have included "F" and "G" under those listed as "B" containers.

Vitamin "C" is perhaps the most unstable of all vitamins. It does not resist heat and is readily lost in cooking, especially above or at the boiling point. "C" insures stamina and physical resistance. It protects against scurvy, lack of growth in children, rheumatism (growing pains), and tooth decay. Its most prolific source

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is citric fruits, raw cabbage, raw turnips, and tomatoes.

"D" is known as "anti-rachitic" because of its influence in preventing rickets or soft bones. This vitamin is rather peculiar in that almost any food can be rendered anti-rachitic by suitable erradiation. The relationship between sunlight, parathoid activity, and vitamin "D" is decidedly evident and it may be, upon further investigation, that vitamin "D" will prove to be the activating principle of the parathyroid glands.

"E" is known as the reproductive, or anti-sterility vitamin. It exerts a marked influence upon ovulation. In many respects it resembles "A" and "B" but is not always found in the foods abundantly rich in "A" and "B." "E" is particularly necessary in adult life. Its most prolific source is wheat embryo, vegetable oil, and fresh lettuce. Animal fat and other animal tissues contain it in small quantity.

To crystallize the vitamin problem, learn to think of vitamins as an essential food factor, entirely removed from carbohydrates, proteins, and mineral salts. These supply the building material and the tangible operating substances.

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Vitamins provide the spark which activates, to a large measure, the various glands of the body. The daily vitamin requirement can be supplied by the liberal use of green salad vegetables and a reasonable amount of dairy products, together with fresh fruits. Make it a point each day to eat at least one raw fruit and one raw vegetable. If you cannot use milk constructively, use some other dairy product, such as egg yolk, or your favorite cheese. We have provided for your convenience under each separate food list, the vitamin content of the food listed. A study of these food tables will give you a very clear idea of where each is found.

PART THREE

Chapter 11

External Bathing

It is possible to bathe too frequently—it is probable that most people do not bathe enough. Thorough body cleanliness is essential to healthful living—and thorough cleanliness is not possible under ordinary circumstances, unless the entire body is properly bathed once each day. It is even better practice to bathe twice each day.

During sleep the involuntary systems of the body proceed with their work without interruption. Waste material accumulated during the day is carried to the various points of elimination. All waste material is not liquid—much of it is gas, and nature has provided for its dissipation. Many of the breakdown gases which seep through the tissues finally arrive at the skin surface during sleep, and gradually spend themselves in the atmosphere immediately surrounding the body. The bed coverings hold these gases in contact with the skin, and, naturally, a certain amount is reabsorbed.

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In addition to the gas, a great amount of breakdown liquid is carried to the skin in the form of perspiration. The bed coverings prevent complete evaporation, and again the skin surface becomes a point of deposit for the body waste.

It is very evident that the common practice of dressing immediately upon arising prevents the dissipation of these toxic gases and the liquid accumulation, as the clothing duplicates the action of the bed coverings.

THE BODY SHOULD BE THOROUGHLY BATHED EACH MORNING before any clothing comes in contact with it. It is advisable, as well, to see that the clothing is properly exposed to fresh clean air while you sleep. If the undergarments are turned inside out, and spread near an open window, they will be aired and freshened. It is equally important that the bed covering receive the same treatment, and when possible be exposed to sunlight.

The morning bath may be either shower or tub. If the shower is used, the water should be at blood heat—lather the body with a good

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vegetable soap—rub briskly with mat sponge or turkish cloth, rinse thoroughly, reducing the temperature of the water gradually until it is relatively cold. Follow with a brisk rub until all parts of the skin are dry.

If a tub is used, water should be of blood heat—never very hot. After a brisk soaping the body should be rinsed in fresh water to insure against a dry, hard skin, which is the result of soap remaining after the bath.

If time does not permit refilling the tub after washing the body, saturate a large rough towel, with fresh water from the faucet, stand in the tub and splash and slap the body—rub dry with coarse towel.

Cold Showers

Cold showers in the morning are beneficial to a great number of people—but they are not suggested as good practice for every one. You can be the best judge of this. If a cold shower leaves you full of pep, wide-awake, with the skin flushed and pleasantly warm, then you will get great benefit out of a cold shower. On the other hand, if cold showers leave you chilly, depressed and dull, DO NOT USE THEM.

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The evening bath serves a double purpose. It is essential from the hygienic standpoint, and can be used as an agent of internal cleanliness.

If a normal amount of perspiration has formed during the day, the skin should be cleansed before retiring. If insufficient physical exercise has not produced at least one flush of perspiration during the day, a hot tub before retiring will reduce a profuse sweat, and will contribute toward general cleanliness. It is good practice to induce perspiration through physical exercise. However, if conditions prevent this, you will find it advantageous to induce a liberal sweat by bathing in hot water just before retiring. If your evening bath is taken for this purpose, rub the body thoroughly with a rough towel, well saturated with cold water, before the brisk dry rub which should always finish the ritual.

Bathing of any sort should always precede the meal, or follow not closer than two hours after it. Bathing while the stomach is full is bad practice.

The Turkish Bath

Under normal circumstances it is good prac-

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tice to indulge in a turkish bath about once in four weeks. This is really a combination of many types of bathing.

The steam bath induces a profuse sweat, opens the pores of the skin and thoroughly relaxes the body. The complete soaping, rinsing, and rubbing which follows thoroughly cleanses the skin. The salt rub, followed by a second steaming, brings a delightful glow to the skin, and forces the skin action into renewed effort—and completely drains the sluggish sweat glands.

The brisk hot needle shower drives all surface accumulation from the skin—stimulates circulation, and the gradual cooling of the water leaves the tissues ready for the massage which follows. Always retire immediately after the bath, to a quiet, well ventilated room.

The Foot Bath

Foot baths are indicated at the onset of a cold or a tendency to rise in body temperature. Avoid scalding the feet, but use the water just as hot as possible. Extra care should be taken when adding water to the bath.

The foot bath should last ten minutes, and extreme care is necessary in the matter of room temperature, draught, etc.

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Salt Foot Bath

A warm salt water foot bath just before retiring is a valuable agent in the correction of tender, tired, or aching feet. Use one-half cup of salt to a basin of water, at blood heat.

Mustard Foot Bath

To increase the effectiveness of a hot foot bath, a small can of powdered mustard may be added to the water. It is important that the entire body be kept warm during the bath. A cold towel may be used at the base of the brain if the fever is rising more than two or three degrees.

Complete Salt Bath

A hot salt bath is indicated occasionally, especially as a corrective measure when the pores of the skin are sluggish and the surface oily. Use about one pound of salt in a tub of water. Bath should last ten minutes. If the skin is hot and dry and tight—avoid salt water bathing.

Epsom Salts Bath

A bath of this sort is effective, if it is used intelligently. The purpose of the bath is to reduce elimination, and it is indicated as a correc-

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tive measure at the onset of severe cold or chill. Water should be hot. Use about three-quarters of a pound of Epsom Salts in a full tub of water. The bath should never exceed ten minutes' duration. Rinse the body with fresh hot water at the conclusion of the bath and immediately retire. Keep warm and avoid drafts.

PART THREE

Chapter 12

Fasting

Fasting has long been recognized as a valuable agent in the problem of efficient living. Generally speaking, its value lies in the fact that it permits additional cleansing activity, especially as related to toxic conditions and toxic material of general character. It is not, however, good business to go on a long fast without the direct supervision of a physician who understands fasting and the reactions associated with it.

As a general practice, it has been found that a so-called three-day fast will be invaluable, if intelligently taken by the average individual, once every two months.

As a corrective measure in disease, the frequency and duration of the fast must be determined by the physical condition of the patient, and also by the character of the disease. The following three-day fast has been found benefi-

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cial in hundreds of cases, and may be applied as a general measure providing for a greater efficiency in the business of living:

Upon arising drink two glasses of water, either hot or cold, as you prefer. Every two hours, up until six o'clock drink two glasses of water. Do not take anything else into the system for the three days.

Breaking the fast is just as important as the fast itself. It is well to remember that the digestive apparatus has been practically out of business for three days and common sense tells us that it would be folly to immediately burden it with a heavy meal of any sort. On the first day after the fast it is a good idea to drink one glass of orange juice every two hours during the day. This may be followed by a glass of water, if desired. The following day one large orange may be eaten every three hours, and it is assumed that water be taken into the system every two hours but the quantity may be cut to one glass instead of two. On the third day an orange may be taken three times a day and with it one glass of whole milk. Use only certified whole milk and be sure the milk and the fruit are thoroughly masticated and eaten together.

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On the fourth day the breakfast may consist of a good wholewheat porridge, served with whole milk and honey, if a sweet is desired. The regular meals may follow at the usual hours, but must be composed largely of non-starchy vegetables, prepared in their own moisture. Wholewheat bread, properly baked, may be used. Two coddled eggs may be included in the diet and any sweet fruit such as dates, black or white figs can be used for dessert, if desired. From this point on the diet should be selected largely from the non-acid food lists as provided in this volume.

Fasting is indicated not only in the event of overweight, or toxic saturation manifesting itself in kidney breakdown, high blood pressure, inflation or disturbed digestion, but also in cases where the nerves appear to be ragged, the individual irritable, restless, and generally nervously upset.

The first problem in cleansing the body is to provide for increased elimination and to guard against the possibility of creating further toxic by faulty dietetic habit. While it is not generally advisable to resort to internal bathing as a practice, it is found to be a valuable agent during

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the fast for corrective purposes. An internal bath, using two quarts of water, to which has been added about two heaping teaspoons of table salt, may be taken twice a day during the three-day fast and once a day for the first three days, following the fast. This bath has been described at another point in this volume. It is not advisable at any time to refrain from all nourishment, including water, for any period of time, not even a day's duration. When refraining from other foods, use plenty of good wholesome water.

Fasting is valuable only insofar as it is intelligently used for a definite purpose.

PART THREE

Chapter 13 Health Hints

Celery Concentrate

Chop celery with leaves; place in covered utensil. Add pinch of salt. Cover with boiling water and steep for ten minutes. Serve piping hot with a salted wafer; effective as an agent in correction of super-acidity, or billiousness.

Iodine Broth

Use two teacups of celery concentrate, two cups of clear tomato juice, one small can of high-grade minced clams with juice. Bring to a boil rapidly, serve piping hot with rye crisp.

Can be used wherever Iodine need is indicated, or as a broth at regular meals.

To Prepare Soup Stock

Select joint of beef from which all the meat has been cut. Have the butcher cut the joint in about three pieces and add to that six to eight inches of the round marrow bone. Wash thoroughly in cold water, place in utensil which can

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be tightly covered, add desired amount of water, two chopped onions, and two teaspoons of salt. Simmer slowly in covered unit for three hours, or until bone is pitted and marrow washed from the center. Pour through strainer and use as a base for vegetable broths, or any desired combination. Stock will keep, if poured in fruit jar and placed on ice.

Peppermint Tea

Select fresh mint leaves, cover with boiling water and steep for five minutes. Sip piping hot. A good manganese drink.

Serve nasturtium leaves as part of vegetable or fruit salad.

Sweeten all fruit drinks with cured honey instead of granulated or powdered sugar.

Add mint leaves to fruit juice drinks whenever possible.

Serve nuts with fresh fruit or vegetable. Never serve alone.

A Delightful Pep Drink

Use the juice of one large orange, one-half grapefruit, one-half lemon, one teaspoon of cured honey, one raw egg yolk, and a few chips of ice. Shake thoroughly, serve in tall glasses.

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A little water may be added if desired. The ice, however, should provide sufficient water. This drink will be found a valuable agent where loss of pep is evident. Should be used as a meal, or taken as a pep drink one hour before the meal, or two and one-half hours after. A maximum effect is secured if three ounces of blackberry juice (unsweetened) is used with the drink.

To Increase Iron in the Blood

Experiment indicates that the duodenum is the center from which iron is absorbed from the food into the system. The following procedure is suggested with the thought in mind, the object being to provide for rapid assimilation and to simplify the process of absorption.

Spinach concentrate

Select one peck of fresh garden spinach (do not use hot house spinach. If fresh spinach is not available use high-grade canned spinach). If fresh spinach is used, wash several times in cold water to remove surface dirt and dust. Rinse thoroughly and shake excess moisture from leaves. Place in large cooking utensil for which you have a good tight fitting cover. Add one teaspoon of salt and one teacup of cold wa-

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ter. Boil for twenty minutes; keep utensil covered. Squeeze juice from bulk, using potato ricer. To preserve juice, when cool pour in fruit jar and place on the ice.

How and When to Serve:

Serve one small teacup each day. Should be piping hot. To be used one hour before the meal, or two and one-half hours after the meal. When served to children, use one-half teacup per day.

Blood Building Vegetable Broth

One pound of spinach. One small bunch of celery with leaves. Four medium sized carrots with leaves. Two medium sized beets with leaves. One-half dozen dried olives. Skin from four medium sized potatoes. Two teaspoons of salt. Four cups of cold water.

Scrub all vegetables thoroughly, chop medium fine, including the leaves, add salt and water, simmer slowly in covered utensil for three-quarters of an hour. Squeeze juice from bulk, using potato ricer. Serve piping hot.

When to Serve:

This broth is a valuable agent in the treatment of heavy colds, or fever diseases. To get

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the best effect, serve one-half teacup every half hour for the first four hours.

It will be found delightful as a broth to serve at regular mealtimes. Use one teacup at a time, and serve piping hot.

Prune Juice Cordial

Select medium size prunes, either dehydrated or dried, scrub carefully, add teacup of water to the pound, simmer slowly for twenty minutes. Squeeze juice from prunes, using potato ricer. Serve cold, adding a little lemon juice to each wine glass full. Use before meals. One wine glass per day will be found a valuable agent in correcting tendency to constipation. Use no sugar while cooking.

Blackberry Pep

Use either fresh blackberries or canned blackberries which have been prepared without sugar; squeeze juice from bulk after the manner used in preparing jelly. Use no sugar with the juice. A spoonful of lemon juice, lime juice, or grapefruit juice may be added. Serve cold. A valuable agent for increasing iron in the blood.

For Acid Correction

The following drink has been found efficient

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in the correction of super-acidity, and a tendency to neuralgia.

Select twelve fresh limes. Use juice of one lime to each glass of distilled water. The drink should be taken one glass each hour during the day. Use no sugar.

Health Hints

TO IMPROVE BOWEL ACTION, the first thing in the morning drink a full glass of hot water, five minutes later drink a full glass of fruit juice, composed of equal parts of orange juice and grapefruit juice. Five minutes later, drink a second glass of hot water, and in extreme cases, follow that with the second glass of fruit juice. Thousands of cases have found great benefit by using this intestinal flush three times a week.

A HALF GRAPEFRUIT EATEN before going to bed, without sugar, is valuable in overcoming FOUL BREATH AND SLUGGISH ELIMINATION.

A good daily business practice is to use one magnesium fruit one-half hour before breakfast each morning.

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TO INDUCE PERSPIRATION IN THE EVENT OF HEAVY COLDS, and provide for tissue relaxation, scrub a lemon thoroughly, bake until soft, and then crush, strain the juice, add a little hot water to the juice, and sip slowly.

IN CASES OF FEVER, scrub a grapefruit thoroughly, squeeze the juice from it, and then chop the grapefruit skin and pulp. Place in earthen crock and cover with boiling water, steep for five minutes, strain and add the juice thus derived to the original juice from the grapefruit itself. Sip piping hot.

PART THREE

Chapter 14

Mental Inventory

Inasmuch as the business of living entails not only the problems of physical efficiency, but also those of mental efficiency, we feel it essential at this time to briefly inventory our mental selves.

We appreciate the fact that a mental inventory is much more difficult than a physical inventory. This comes about because we may not reduce the mind to the contents of the test tube, or otherwise determine its essential essence.

The mind exists to us only because we have a mind to conceive its existence, and not because of any concrete evidence available that will determine its actual structure. Apparently what the mind is, in and of itself, transcends human understanding, and nothing will be gained here by philosophyizing upon its probable substance.

It is important that we attempt to differentiate ourselves and our minds. The very fact that we speak of our minds as possessions

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strongly indicates that inherently we conceive ourselves to be something different than our minds. We are the possessors. We profess to possess our minds. It is altogether good business to assume that we are superior to any of our possessions. This very assumption provides for an expression of ownership which is very essential in the problem of mental health.

We are not, or should not, be concerned about who we are and what we are, because this problem remains unknowable. The essential thing is to know definitely that we own our minds, and from this point to proceed to take control of them, and to operate them for our own benefit. From a superficial angle the mind is made up of thoughts, ideas, pictures, and conceptions, invariably conforming to a general pattern. There are just as many mental patterns as there are living individuals, which probably accounts for the fact that no two of us interpret things exactly alike. There seems to be an individual element or motive to which all our thoughts are adjusted. Why this is true, is not apparent. The fact that it is true, perhaps provides a reason for our mental variations and limitations.

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For the purpose of study, we divide the mind into three departments, or divisions. These divisions are natural, because our varied reactions to certain experiments and conditions, indicates the existence of these three aspects.

The higher aspect of the mind, like each of the other two aspects, provides for the reception and interpretation of vibrations on the first plane. This aspect of the mind is the oldest in point of existence, and is probably "the silver cord" which interlocks our existence with the existence of every other living thing. It is the factor which individualizes us. It operates altogether independently of our consciousness. Occasionally its force and power come through to the surface, and we for the moment appreciate what is meant by the super-existence.

This phase of the mind is the storehouse of the ages; its contact possibilities, rarely appreciated by the average individual. It is called, for want of a better term, the super-conscious aspect of the mind. Its receiving capacity is limited to contacts beyond the sphere of consciousness. It is not our purpose here to attempt a detailed explanation of this mental phase and its possibility, for that study will have to be left for

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future consideration. It is suggested, however, that many of us would be healthier, happier, and more successful if we attempted to demonstrate on the lesser planes of mental activity before we attempt to demonstrate on this, the supreme plane. This particular realm of mental possibility should remain as an ideal conception, to be attained only after we have mastered the conscious aspect of the mind, and have established its function in harmony with the subconscious aspect. It is always advisable to learn to walk before we attempt to run.

The second aspect of the mind is called the subconscious. Its receptive capacity is two-fold in character. External contact is provided through the radiation of forces or vibrations which are not, or cannot, be reached by the five senses.

In addition to this contact, the subconscious mind receives impressions directly through the third aspect, or the conscious mind. Impressions, pictures, thoughts, ideas, and conceptions are transmitted through the conscious to be stored away, and become an actual part of the subconscious. Therefore, this aspect is some-

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times spoken of as the storehouse of memory. This phase of the mind is in a constant state of adjustment and readjustment. We are building it during every hour of life.

We are exactly a reflex of our subconscious selves. Subconscious broadcasting announces us for what we are, and we are powerless to prevent its disclosures over any long period of time. It should be evident then, that it is well to attempt a revision of the subconscious mind by the consistent habit of doing things as they should be done, and seeing things as they should be seen.

The third and most simple aspect of the mind is called the "Conscious." Conscious reception is two-fold in character. Thoughts are transmitted from within and transmitted from without. The conscious mind is largely an educated mind in the sense that it exists simply because of ability to contact our surroundings and interpret them in harmony with generally conceived and accepted prestige. The five senses provide the outer, or external contact, while the internal contact proceeds directly through from the subconscious.

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It is the function of this combined mental mechanism to direct and control all action and reaction, which characterizes life. Our life is harmonized with all life through the super-conscious. Our life is affected by, and does affect, all immediate lives surrounding us through the subconscious. The conscious factor provides for education through material immediate contact. In addition it may be suggested that all involuntary function within the body is undoubtedly supervised and controlled by the subconscious aspect of the mind. All voluntary function is directed by the conscious phase of the mind.

AS FAR AS THIS LIVING BUSINESS IS CONCERNED, A CONTINUED CONSCIOUSNESS OF MENTAL OWNERSHIP IS FUNDAMENTAL. An absolute knowledge that you own your mind will do much to bring about an automatic habit of mental direction. You will begin to do things with your mind. You will not permit your mind to do things with you.

Activity is the keynote to mental health. Nothing remains in a state of health and development, when function ceases, and this is just as

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true of mental life as it is of any other vital expression.

It has been said that an active mind is a healthy mind, but we beg to suggest that this preachment cannot be wholly true. The mind can be very active, in fact over-active, and still be anything but healthy.

In many ways, the mind is like a salamander. It is colored by the thing upon which it rests. A mind pattern is often distorted because of the negative character of the thoughts upon which it dwells.

Morbid thought habits are decidedly unhealthy, not simply because they manifest themselves in morbid actions, but more so because of the profound toxic generation associated with their creation and development. The depressing, stultifying affect of morbid thinking, saturates the entire cell structure of the body. It reduces resistance, and forms reflex habits which weaken the defense mechanism, and eventually provide for intercellular inhibition, decidedly contrary to normal metabolism. Thoughts are prolific things, they multiply with startling rapidity. They always reproduce themselves in kind. Happy thoughts are the offsprings of

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happy thoughts. Morbid thoughts are the offspring of morbid thoughts. The surest way in the world to build a complete morbid mental structure is to pyramid, or pile up, morbid thoughts, and this rapid multiplication finds origin in a single thought of morbid character.

Our habit of thought as related to health and disease will have a marked influence upon our reaction to these two conditions. LEARN TO THINK OF DISEASE AS AN UNNATURAL CONDITION. How many thousands of times have we heard disease discussed as our natural inheritance. Half of us actually live in a state of disease expectancy. We anticipate disease. We are actually disappointed if we fail to at least enjoy a short spell in bed once in a while. This silly idea, for it is nothing more, should be eradicated once and for all.

We recall any number of cases where this expectancy proved to be the important factor in producing a state of disease. Have you ever known a little lady who confidently expected "*her* sick headache" each Monday morning—? How thoroughly these simple souls go about providing for the event. Extra baking must be done so that the children will have enough to

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eat, and hubby can take his dinner out of the ice box. The house is set in order, so that if the neighbors drop in, their criticism will be less unkind. They know very definitely that Monday will find them in bed and they provide for it.

We believe we have said before that the mind is like a salamander—it is colored by the thing upon which it rests. IT IS JUST AS EASY TO COLOR THE MIND WITH HEALTH AS IT IS TO COLOR IT WITH DISEASE. Learn to think of disease as something to be ashamed of, rather than something to be encouraged, or attracted.

Thinking, again, has a direct effect upon general health from an adverse angle, by our constant habit of worrying. We will admit, without argument, that most of us really imagine we have something to worry about; that does not alter the fact that our habit of worry is a costly expense, manifesting itself in devitalization and mental exhaustion. Worry can become a habit. It usually IS a habit, and can not be corrected unless we replace it by a habit of equal intensity and importance.

If we analyze ourselves when we worry, we will find that we are actually creating a condi-

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tion which in ninety-nine cases out of one hundred does not exist. We will find out, as well, that after we have created this thing, we then begin to plan what it is going to do to us. We never figure what we are going to do with the condition which actually exists when we worry.

The habit of worry is best corrected by a calm, analytical attitude. We cannot expect to conserve our mental energy unless we use it intelligently. It takes less time and less effort to plan the destruction or correction of something, than it does to plan our own destruction through that something. Worry is an inverted expression of the first law of life, and we may not turn this law upon ourselves without paying the penalty.

While there are many angles to this problem of mental health, none of them are more important than a consciousness of self-hood, a sense of mental values as related to disease and health. It is not our purpose in this volume to enlarge this subject beyond this very slight beginning. It is hoped, however, that the student will embody the basic principle of mental ownership, as part of the necessary equipment associated with the business of living.

In Conclusion

It is respectfully suggested that the students of better living use these notes constantly, in selecting foods for their personal needs and those of their families. Many dollars can be saved, and much sickness prevented, if an intelligent effort is made to harmonize your personal needs with the directions given in this volume.

No effort has been made to present the problem from a technical angle—rather the opposite has been attempted. The book has been designed to simplify the study of food values, and to reduce the material to a form where it will be of use to the individual who has not given it a great deal of thought.

Keep the food lists handy. Study the material thoroughly, and follow the suggestions offered. The body is a highly sensitized unit, and will respond in its own way to intelligent effort on your part to supply the materials needed for building, repairing, energizing, and operating the body. Expect no miracles. Be consistent with common sense, and trust your own good judgment when no specific directions are given.

THE BUSINESS OF LIVING

The work is the result of years of study and experiment. We have many authors to thank, and many instructors to remember. To mention them all here would be to no purpose, and to mention some of them would be unfair to the rest. It is our sincere hope that the students of this volume will think of us as we think of those who have unselfishly given their knowledge to us. Above all, please remember us as absolutely sincere in our effort to help you.

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